



GARY R. HERBERT  
Governor

GREG BELL  
Lieutenant Governor

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Water Rights

KENT L. JONES  
State Engineer/Division Director

February 19, 2013

RE: Stream Channel Alteration No. 13-89-02SA  
Paria River  
Kane County

Attached is a copy of an application to alter a natural stream, which has been submitted to the Division of Water Rights (Division) for processing.

In processing this application, the Division will work to determine if the project will:

- Unreasonably or unnecessarily affect any recreational use or the natural stream environment;
- Unreasonably or unnecessarily endanger aquatic wildlife;
- Unreasonably or unnecessarily diminish the natural channel's ability to convey high flows; or
- Impair vested water rights.

Any decision made regarding this application will be based exclusively on these four criteria. If you have information regarding these four criteria that will aid the Division in making a determination and subsequent decision, please submit this information, in writing, to this office prior to **March 11, 2013**. For questions or comments pertaining to all other aspects of the project, please contact the applicant listed on the front page of the application directly.

Sincerely,

*Tiffany Gonzales*  
for Chuck Williamson, P.G.  
Stream Alteration Specialist

Pc: Richard Clark - EPA  
Corps of Engineers  
Supervisor - U. S. Fish & Wildlife  
Kurt Vest - Regional Engineer  
Gary Bezzant - Regional Wildlife Habitat Manager  
Carmen Bailey - Aquatic Habitat Coordinator  
Bill Damery - DEQ, Water Quality Division  
Laura Ault - Forestry Fire & State Lands  
Kelly Beck - RDCC Coordinator  
State Parks & Recreation  
Lori Hunsaker - State History  
W. D. Robinson - Department of Agriculture  
Judy Watanabe - CEM



CHK No. 027056

Rec. by CDWC  
 Fee Rec. \$500  
 Receipt # 13-00629

**JOINT PERMIT APPLICATION FORM**  
 U.S ARMY CORPS OF ENGINEERS – FOR SECTIONS 404 AND 10  
 UTAH STATE ENGINEER’S OFFICE – FOR NATURAL STREAM CHANNELS

Application Number 13-89-025A  
 (assigned by): \_\_\_\_\_ Corps \_\_\_\_\_ State Engineer

Applicant's Name (Last, First M.I. or entity if not an individual) <b>Kane County</b>		Authorized Applicant Representative (if any) <b>Jones and DeMille Engineering</b>	Applicant's Telephone Number and Area Code (435)644-4903	
Applicant's Address (Street, RFD, Box, Number, City, State, Zip) <b>76 N. Main St., Kanab, UT 84741</b>		Representative's Telephone Number and Area Code (435)896-8266		
<p align="center">X: <u>418534.35</u>      <b>PROJECT LOCATION</b>      Y: <u>4115609.87</u></p>				
Quarter Section(s) <u>NE SW</u>	Section <u>4, 16, 33</u>	Township <u>42, 41 S</u>	Range <u>1 W</u>	Base & Meridian <u>SLM</u>
County <b>Kane</b>	Associated Watercourse or Watercourse to be Altered <b>Paria River</b>		Check one: <input type="checkbox"/> Within City Limits <input checked="" type="checkbox"/> Outside City Limits List town or nearest town: <b>Kanab, Utah</b>	
Project location or address: <b>The project is located at two locations on the Paria River approximately 34 miles east of Kanab, Utah.</b>				
Brief description of project including methods and equipment to be employed to complete the work: <b>The action proposed is to repair and prevent further erosion and scour damage. Proposed improvements include rip rap armoring of critical river embankments, debris removal and vegetation planting. The project location and activities are shown on the attached Maps and Construction Drawings.</b>  <b>The project will be completed using large construction equipment including a track-hoe excavator and loader.</b>				
Purpose (justification) of project: <b>During May, June and December of 2011, large flood events caused significant erosion and scour damage to locations along the Paria River. The flood events occurred because of record accumulations of watershed mountain snow pack and an unusually cool, wet spring. As temperatures rose in the middle part of May 2011 large amounts of snow melt entered the Paria River and its tributaries. The resulting flood damaged an existing road.</b>				
Is this a single and complete project or is part of a larger project, continuing project, or other related activities? If so, please describe the larger project or other related activities. <b>This is a single project.</b>				
If project included the discharge of dredged or fill material into a watercourse or wetland:  Cubic yards of material: <b>2600 c.y.</b> Acreage or square footage of waters of the United States affected by the project: <b>0.23 acres permanent; 0.16 temporary</b> Source and type of fill material: <b>UDOT Buckskin Quarry approximately 25 miles east of Kanab Utah</b> Length of stream that will be impacted below ordinary high water elevation: <b>610 feet permanent; 700 feet temporary</b>				

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**FEB 15 2013** JH  
**WATER RIGHTS**  
**SALT LAKE**

Alternatives (other ways to accomplish project purpose):

No alternatives were developed (other than No Action) because the project is designed to address specific erosional damage to the Paria river.

Describe any proposed mitigation to offset impacts to the stream channel.

No additional mitigation measures are needed to offset construction impacts to the river channel and banks because the project is designed to repair the extensive flood damage to the river channel and banks.

Cultural resource impacts:

Are you aware of any cultural resources or any historic properties that will be impacted by the proposed project?  Yes  No

If Yes, please explain:

The attached BLM EA (UT-030-07-008) documented (with the concurrence of the SHPO) that there would be no impacts.

Has a cultural resource survey been conducted on the property where the proposed project is to occur?  Yes  No

If Yes, please briefly explain the survey results:

List other authorizations required by Federal, state, or local governments (i.e.: National Flood Insurance Program), and the status of those authorizations.

The BLM FONSI/Decision Record for EA Number UT-030-07-008 approved this project.

Stream alteration permits (07-89-02SA through 07-89-05SA) for these projects were approved March 13, 2007.

Estimated starting date of project:

Early spring 2013

Estimated completion date:

Spring 2013

### Please complete the following checklist

Failure to indicate that all pertinent information has been submitted will result in your application being returned.

- Appropriate application processing fee payment (see fee schedule below).
- A clear site location map with enough detail to easily find the site, a recent aerial/satellite image of the site, and a USGS topography map (7.5 minute quadrangle map is recommended).
- Plan view and cross-sectional drawings showing all work requiring a permit, including fills, structures, borrow sites, staging areas and storage areas. The drawings must clearly demarcate the ordinary high water mark of the waters of the U.S. to be impacted. Professional drawings are not required; however, drawings must be scaled or indicate dimensions of the work to be completed.
- A restoration plan for any areas temporarily disturbed during work, including re-contouring, revegetation with appropriate native plants and maintenance and monitoring to ensure success for the restored area.
- Ground photographs taken from various locations of the proposed disturbance area.
- Please check the box if the proposed project involves bank stabilization or protection. If so, please complete the following: See the attached BLM EA
  - A narrative demonstrating the proposed activity incorporates the least damaging bank protection methods. These methods include, but are not limited to, the use of bioengineering, biotechnical design, root wads, large woody debris, native plantings, and beach nourishment in certain circumstances. If rock must be used due to site erosion conditions, explain how the bank stabilization structure incorporates elements beneficial to aquatic organisms.

- A description of current and expected post-activity sediment movement and deposition patterns in and near the activity area.
- A description of current and expected post-activity habitat conditions, including the presence of fish, wildlife and plant species in the activity area.
- An assessment of the likely impact the work would have on upstream, downstream and cross-stream properties (at a minimum the area assessed should extend from the nearest upstream bend to the nearest downstream bend of the watercourse). Specifically, discuss how the project will impact the following:
  - Will the activity accelerate deposition or erosion?
  - Will impacts to sensitive species or habitats result from a change in suspended sediment load or turbidity?
  - Will the activity affect the diversity of the channel by eliminating in-stream habitat, meanders, or gravel bars?
  - Will the activity result in a shift in the main flow patterns?
- A planting plan which involves the use of native riparian plants, unless the applicant demonstrates it is not appropriate or not practicable.

Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete and accurate. I further certify that I possess the authority to undertake the proposed activities or am acting as the duly authorized agent of the applicant which is a (check one of the following) commercial , non-commercial , or governmental  entity.

Signature of Applicant *Ronald L. Burtz* Date: 2-13-13

I hereby certify that \_\_\_\_\_ is acting as my agent on this project.

Agent's address and telephone number: \_\_\_\_\_

### Filing Instructions

Application supplements should be submitted on paper no larger than 11 x 17 inches or alternatively as PDF format electronic files. If more than one watercourse is to be altered as a result of the project, a separate application must be submitted for each watercourse. Application fees must be received by the Division of Water Rights at the time of application submission and must be either hand delivered or submitted through standard mail.

### Application Processing Fees

Application fees are based on the type of entity applying for the proposed stream alteration project.

Commercial Entities:	\$2000.00	per application processed.
Non-Commercial Entities:	\$100.00	per application processed.
Governmental Entities:	\$500.00	per application processed.

**U.S. Department of the Interior  
Bureau of Land Management**

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**Environmental Assessment UT-030-07-008  
July 2007**

**Paria Riverbank Stabilization**

*Location: GSENM – 4-Sites on the Southern End of the Cottonwood Road  
Applicant/Address: GSENM, Kanab Utah 84741*

U.S. Department of the Interior  
Bureau of Land Management  
Grand Staircase-Escalante National Monument  
190 E Center Street  
Kanab, Utah 84741  
Phone: (435) 644-4300  
Fax: (435) 644-4350



## **CHAPTER 1 INTRODUCTION AND NEED FOR THE PROPOSED ACTION**

### **INTRODUCTION**

The Paria River is a shallow, perennial stream that flows from north to south and empties into the Colorado River near Lee's Ferry. The Paria River has a large drainage basin. This coupled with clay-type soils in its upper reaches make the Paria River a very flashy, flood-prone stream with easily eroded streambanks. Large floods created by monsoonal rains are fairly common in the Paria River. The reach between the "Paria Box", where the stream passes through the East Kaibab Monocline, and extending to the Highway 89 bridge have especially unstable streambanks because of unconsolidated landslide material and because of the Tropic Shale formation through which it passes. Cottonwood Canyon Road (Cottonwood Road) and a large regional powerline pass through this reach of the Paria River. Cottonwood Road parallels the River for approximately 7 miles.

High flows and unstable streambanks from the "Paria Box" to Highway 89 bridge reach have caused streambank erosion. This erosion is threatening to wash away four sections of riverbank (Appendix C Figure 1) along the southern portion of the Cottonwood Road, including a large regional electrical tower (Appendix B see photos). This electrical tower supports a transmission line that is the principle source of power for the towns of Cannonville, Tropic, Henrieville, and Escalante. Kane County estimates that this section of streambank/roadway averaged about 3 washouts per year in the past 10 years (personal communication Lou Pratt Kane County Engineering).

Cottonwood Road is a main north/south travel corridor across the Monument. Approximately 20,000 vehicles are counted and recorded annually on the Cottonwood Road. The Cottonwood Road provides access for several recreation activities including: hiking, camping, hunting, scenic driving, OHV riding, horseback riding, backpacking, and wildlife viewing. There are also several recreation sites accessed by this road; the most popular of these is Grosvenor Arch. Other uses, public and/or property currently accessed by the Cottonwood Road consist of grazing, mining, energy (power lines), private land owners, scientific research, commercial outfitters, educational groups, general public, and federal land administrators.

The Natural Resources Conservation Service (NRCS) completed a Damage Survey Report (DSR) for this section of the Paria River on 8/23/2006 (see DSR in the project record). The DSR tied to the Emergency Watershed Protection Program Final Programmatic Environmental Impact Statement and would have been adequate environmental documentation for the project to proceed had this undertaking been on private or state lands. However, because the proposal was on Bureau of Land Management administered lands, the GSENM Monument Manager decided to analyze project effects with an environmental assessment for a BLM decision.

This project is a collaborative effort involving the Bureau of Land Management Grand Staircase Escalante National Monument, Kane County, and the U.S. Department of Agriculture Natural Resources Conservation Service.

## **NEED FOR THE PROPOSED ACTION**

There is a need for streambank stabilization along the Paria River at 4 areas on the southern portion of Cottonwood Road (Grand Staircase-Escalante National Monument) (Appendix C Figure 1). This project is needed because high flows have caused cutbank erosion and soil mass wasting along the streambank which are threatening to wash out Cottonwood Road and a large regional electrical transmission tower (Appendix B Photo 1).

The threatened transmission tower is the sole source of electricity for Cannonville, Tropic, Henrieville, and Escalante. A break in electrical service would occur if the Paria River washes out the tower. Interrupted electrical service would pose a health and safety risk to the citizens of Cannonville, Tropic, Henrieville, Boulder, and Escalante while the tower would be reconstructed and electrical service is restored.

Cottonwood Road is one of only three easily accessible Monument north/south through routes in the Passage Zone. It provides access, across the Monument, to Cannonville, Tropic, and Henrieville, and accesses multiple recreational destinations. Monument access would be compromised in the Passage Zone if the Paria River washes out the Cottonwood Road. The Cottonwood road's current alignment is the only practical place for the road. The Paria River lies to the west of the existing road in the project area and there is a rock face to the east.

## **CONFORMANCE WITH BLM LAND USE PLAN(S)**

This action is consistent with decisions in the Grand Staircase-Escalante National Monument Management Plan (2000), and moves the project area towards objectives described in that plan for Transportation and Access. Decision TRAN-7 states: *Cottonwood Wash Road: Allow stabilization of washout prone areas, primarily along the southern section, to prevent erosion and sediment loading in drainages (pg 47).*

## **RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS**

### **Kane County Land Use Ordinance**

This project complies with the Kane County Land Use Ordinance (July 1, 1998).

**BLM Utah Riparian Policy (IM UT 2005-091)**

The proposed action conforms to the BLM Utah Riparian Policy (IM UT 2005-091). The proposed action is the only practical alternative. All other alternatives create far more impacts or have costs which are completely prohibitive. The proposed action will also benefit and enhance the riparian area. By stabilizing the banks and planting native riparian vegetation, such as willows, the riparian system will improve and become more resistant to flash flooding and sediment erosion.

**Executive Order 11988 on Floodplain Management**

The proposed action conforms to this Executive Order. The design of the stabilization structures, along with their placement location, timing of the physical work, and revegetation plan have all been created and modified to minimize harm to the floodplain and to improve it in the long term. This EA serves as notice and an explanation as to why the proposed action would take place in a floodplain.

**Section 404 (e) Clean Water Act**

Kane County has applied for and received a stream alternation permit on March 13, 2007. This project complies with the Clean Water Act and the requirements of Section 73-3-29 of the Utah Code Annotated, 1953 for stream channel alteration (see Stream Alternation Permit in the project record).

**Endangered Species Act**

This proposal complies with the Endangered Species Act. The Fish and Wildlife Service concurred with the not likely to adversely affect the southwest willow flycatcher and yellow-billed cuckoo determination and the no effect determination for all other federally listed and candidate species (see Threatened and Endangered Wildlife in Chapter 4 below). Fish and Wildlife Service concurrence was received on May 9, 2007 in response to our request for informal consultation on May 4, 2007 (Appendix D).

**National Historic Preservation Act**

This proposal complies with the National Historic Preservation Act as determined by the Utah State Historic Preservation Officer (see Appendix D and Chapter 5 below).

## **CHAPTER 2**

### **DESCRIPTION OF ALTERNATIVES**

#### **INTRODUCTION**

This EA focuses on the Proposed Action and the No Action alternatives. No issues were raised during project scoping, so no additional mitigation or other action alternatives are proposed to address unresolved issues. The No Action Alternative is considered and analyzed to provide a baseline for comparison of the impacts of the proposed action.

Two other alternatives were considered and eliminated from detailed study (see alts. map in the project record). The first considered new construction to the west of the current alignment. This alternative was eliminated from detailed study because the new road would be constructed between the Cockscomb Wilderness Study Area and the Paria River. This would put the new road in the flood plain. The second alternative considered but eliminated would have reconstructed roads 430 and 431 (GSENM road #s) to bypass the hazards on the Cottonwood Road. This alternative was eliminated from detailed study because it would require complete reconstruction of roads 430 and 431 over steep terrain, in a canyon that is prone to flooding. Both alternatives considered and eliminated would require transmission tower relocation to an area away from the eroding riverbank.

#### **PROPOSED ACTION**

Grand Staircase Escalante National Monument proposes to construct four stabilization structures along the Paria River on the southern end of the Cottonwood Road (Appendix C Figure 1). The structures would be constructed of rocks and boulders of various sizes and covered with geotextile fabric and soil from the site (Appendix C Figure 2). Twenty-five percent of the structures would be constructed with four foot diameter boulders. The overhanging rock faces on the east side of Cottonwood Road would be sloped back during construction for public safety. This material would be used to cover the rock stabilization structures so they blend in with their surroundings. At least one lane of the Cottonwood Road will remain open during construction for public access.

Willows would be planted at the toe of the structures, in the wet zone, and in construction staging zones to reestablish native riparian vegetation. The willows would be collected as cuttings from the adjacent area. Native drought tolerant species would be planted or seeded in construction disturbed areas outside of the wet zone.

The sites are numbered 1-4. Site 1 is the southernmost, and site 4 is on the north end of the project area at the transmission tower. The rock structure at site one would be 700 linear feet (LF) long, site 2 would be 1000 LF long, site 3 would be 800 LF long and site 4 would be 2,500 LF long (Appendix C Figure 1).

Appendix C Figure 2 is a schematic diagram of the stabilization structure construction. In sections 1 and 2 and 4 the top of the structure would be below or approximately level with the road surface. However, in the southern portion of section 3, where the road and

the river are on the same plane, the top of the structure may be slightly above the top of the road surface for the stabilization structure to function properly.

This proposal includes the following design criteria:

- All equipment would be washed to remove any potential weeds prior to entering the project area.
- Any natural materials (i.e. straw or hay) used on the project would be certified as weed free;
- The following weed species would be removed and/or sprayed within a 50 meter buffer of either side of the four stabilization zones: Tamarisk, Russian olive, Russian knapweed, and Common reed. Tamarisk and Russian olive should be cut and stump treated with herbicide (Garlon 4), the Russian knapweed should have a foliar application of Tordon or another water safe herbicide, and the Common reed should be foliar sprayed with the herbicide Rodeo. Herbicide application should occur during the most effective time based on each species' life cycle and each applications needs to follow the label directions.
- The project area would be monitored for weed presence for the first three years following implementation and measures will be taken to control any new invasions.
- The Cottonwood road would be watered during hauling rock hauling to minimize dust and maintain a drivable road surface.
- Construction would occur outside the southwest willow flycatcher and yellow-billed cuckoo breeding dates (September 1 to March 30).

A connected action would be the removal of approximately 75,000 tons Kaibab limestone from a Federal Highway Administration Department of Transportation gravel pit. This material would be use to construct the structures. The gravel pit is on the south side of Highway 89 near its intersection with Buckskin Wash.

GSENM would issue a letter of authorization to Kane County for construction and maintenance of the river stabilization structures.

#### **NO ACTION**

Under the No Action alternative the BLM would not approve the construction of 4 riverbank stabilization structures along the Paria River on Grand Staircase-Escalante National Monument. Kane County would continue to rebuild the road approximately 3-times a year as the roadway washes out from flooding. The regional transmission line would continue to be threatened by the receding Paria riverbanks.

## **CHAPTER 3 AFFECTED ENVIRONMENT**

### **INTRODUCTION AND GENERAL SETTING**

The affected environment of the Proposed Action and No Action alternatives were considered and analyzed by an interdisciplinary team as documented in the Interdisciplinary Team Analysis Record Checklist, Appendix A. The checklist indicates which resources of concern are either not present in the project area or would not be impacted to a degree that requires detailed analysis. Critical Elements of the Human Environment are those elements that are subject to the requirements specified in statute, regulation, or executive order, and must be considered in all EAs (BLM H-1790-1, Appendix 5). Critical Elements of the Human Environment are included in Appendix A. Resources, including Critical Elements, which could be impacted to a level requiring further analysis, are described in Chapter 3 and impacts on these resources are analyzed in Chapter 4 below.

GSENM covers approximately 1.96 million acres on the Colorado Plateau in Garfield and Kane Counties of Utah. The climate is classified as semiarid with annual precipitation ranging from 13 inches in the Grand Staircase physiographic region to about 8 inches in the lower Escalante Desert

The Monument encompasses portions of four broad hydrologic subbasins, all of which are part of the Colorado River system. The Paria River Subbasin (including Hackberry Creek and Cottonwood Creek) extends from the Bryce Canyon-Bryce Valley area, terminating below Glen Canyon Dam near Lee's Ferry. The Escalante and Paria River drainages cover much of the Monument and are the major perennial flowing waters.

GSENM is located along the western boundary of the Colorado Plateau physiographic province. The vegetation and flora of the Colorado Plateau are sufficiently distinct and uniform to be recognized as their own ecologically-based land area or ecoregion. Vegetation types on the Monument are dependant on soils and available moisture. Percentages of major types on the Monument are barren rock outcrop 25%, pinyon-juniper woodlands 47%, sagebrush-grassland 9%, black brush 9%, and desert shrub 7%. Others vegetation types are included in the table in chapter three under resource 3, vegetation.

#### **Elements Requiring Further Analysis**

##### **Floodplains**

This reach of the Paria River has a very active floodplain. The river winds through the project area. It is located in a broad valley normally incised several feet below the floodplain. Because of the geology and soil types in the area, the Paria River's channel is very active. At various times during the year, large flash floods roll down the Paria, inundating the floodplain. Because of the presence of both a road and transmission line

along the east side of the Paria River, the floodplains near the cutbanks on this east bank have been continually altered through heavy road and transmission line maintenance.

## **Visuals**

### *Project Area Along Cottonwood Road*

The proposed project area is in Visual Resource Management (VRM) Class II. The objective for VRM Class II is to retain the existing character of the landscape; management activities may be seen, but should not attract the attention of the casual observer. (Please note that current GSENM digital data sets for VRM Classifications indicate that Sites 3 and 4 are within VRM Class III. It has been determined that this is a mapping error based on the scales used for digitization and the intent of the VRM Classifications determined during the Management Planning effort was for the line dividing Class II and III areas to be at the toe of the cliffs and slopes in this area along the east edge of Cottonwood Road.)

The proposed project area is located along Cottonwood Road within the Paria River floodplain at the base of Tropic Shale cliffs on the western edge of the Kaiparowitz Plateau physiographic province. The characteristic landscape is a narrow, meandering river valley pinched in to the east by steep, highly-erodible, and irregularly-shaped cliffs and to the west by jagged, diagonally-oriented sandstone fins of The Cockscomb. The landforms in this landscape are primarily gray, tan, buff and/or pink, and their texture is rugged and coarse. The dominant vegetation (willows and other riparian vegetation) is located in the floodplain and is irregular and densely patchy, bright green, and medium in texture. Other than powerlines, there are no built elements in the project area.

### *Connected Action – HWY 89 Pit*

The FHWA pit along HWY 89 is located in a VRM Class III where the objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate and management activities may attract attention but should not dominate the view of the casual observer.

## **Vegetation/Riparian**

The two main plant communities in the project area are riparian and desert shrub. The riparian plant community is discontinuous along the Paria River with bare, scoured shoreline mixed with stands of shrubs and trees. Herbaceous riparian vegetation cover is low with woody species the dominant plant form. These include shrubs such as coyote willow (*Salix exigua*), tamarisk (*Tamarix chinensis*), and Russian olive (*Elaeagnus angustifolia*). Fremont cottonwoods (*Populus fremontii*) are less common and typically occur as saplings or young trees. An introduced invasive species, Common reed (*Phragmites australis*), occurs intermittently along the Paria River within the project area. Upland vegetation is composed of species that tolerate the saline soils and xeric conditions. These include Four wing saltbush (*Atriplex canescens*), Rabbitbrush (*Chrysothamnus viscidiflorus*), and salt grass (*Distichlis spicata*).

No state noxious weeds are present in the project area but one does occur adjacent to the project area. Russian knapweed (*Centaurea repens*) occurs under a stand of Tamarisk on

the east side of the road and just south of the project area. Cheatgrass (*Bromus tectorum*), Tamarisk, Russian olive, and Russian thistle (*Salsola pestifer*) are also invasive species found in the project area but are not listed as noxious by Kane County or the State of Utah.

### **Threatened and Endangered Wildlife**

The riparian areas along the Paria River provide potential nesting habitat (see Vegetation above) for one federally listed and one candidate species. The Utah Division of wildlife Resources (UDWR) has recent records of occurrence for the southwestern willow flycatcher (listed endangered) within a 1/2 -mile radius of the project area. The willows and salt cedar trees also provide potential nesting habitat for the yellow-billed cuckoo (candidate for federal listing).

## **CHAPTER 4 ENVIRONMENTAL IMPACTS**

### **DIRECT AND INDIRECT IMPACTS**

#### **PROPOSED ACTION**

This section analyzes the impacts of the proposed action to those resources described in the affected environment section 3, above.

#### **Floodplains**

Through the placement of bank stabilization structures near the east side cutbanks, the roadbed will stay in a fixed position requiring surface maintenance only. This will allow the floodplains that have been altered by heavy road maintenance in the past to become revegetated, stabilized, and restored to their hydrologic function. The planting of native vegetation along the project area will speed this recovery.

#### **Visuals**

##### *Project Area Along Cottonwood Road*

The elements of the proposed project that would be visible to the casual observer include the construction vehicles used during the implementation phase, the curving, linear mounds of rock that form the erosion control structures, and the vegetation that is to be replanted at the toe of the structures and other locations. The construction vehicles would only be visible intermittently and for the duration of the construction phase (12 weeks) rock mounds would be covered with soil from the area and in some instances would be flush at the top with the edge of the roadway thus reducing their visibility. The reestablished vegetation would visually blend with what is currently growing in the project area.

The proposed project is located in an area with recreational visitation for scenic backway driving, hiking, backpacking, etc. Individuals participating in these activities, who are typically sensitive to visual resource changes, define the average casual observers.

In the short term (during and immediately following construction), aspects of the project would attract the attention of the casual observer and would not meet the objectives of VRM Class II. However, in the long term (after project completion and vegetation is reestablished) the proposed project would meet VRM Class II objectives for this area because the forms, lines, and colors found in the characteristic landscape are repeated so as not to attract the attention of the casual observer.

#### *Connected Action – HWY 89 Pit*

The elements of the connection action at the material pit that would be visible to the casual observer include the construction vehicles and the dust they cause. The construction vehicles and dust would only be visible intermittently and for the duration of the construction phase (12 weeks).

The proposed project is located adjacent to HWY 89 which is a primary state highway serving commercial, resident and tourist traffic. Highway travelers define the average casual observers.

The disturbance to the existing landform that would occur when material would be removed from the pit would be screened from view from the highway by a rolling mound of existing terrain in the foreground that would remain intact. As material would be removed and the depth of the pit would increase, the visibility of the construction equipment would decrease.

The connected action to the proposed project would meet VRM Class III objectives because the project work would be screened from view by existing landforms that will remain intact. Material removal from the pit would not dominate the view of the casual observer traveling along HWY 89.

#### **Vegetation/Riparian**

Existing vegetation would be removed during implementation of this project. Vegetation removal and soil disturbance typically increases the chances for weed invasion and proliferation. However, the restoration of the disturbed sites with native, site appropriate species and the weed management measures outlined in the proposed action would improve the long term stability and resilience of the riparian vegetation.

#### **Threatened and Endangered Wildlife**

The proposed action involves the disturbance and removal of some riparian habitat. Therefore, this project may affect the southwestern willow flycatcher and the yellow-billed cuckoo. However, these effects will be minimized by scheduling project construction during the time period when these species are not present in Utah. This would be approximately September 1, 2007 to March 30, 2008. Replanting willows will

replace the habitat lost during construction and provide future potential nesting sites for these species.

There would be no effect on the following federally listed and candidate species known to occur in Kane County from the proposed action (see NRCS consultation letter Appendix D):

**Table 4.1. List of TES species known to occur in Kane County**

Species	Status	Effect
Bald Eagle	Threatened	No Effect
California Condor	Endangered	No Effect
Colorado Pikeminnow	Endangered	No Effect
Coral Pink Sand Dunes Tiger beetle	Candidate	No Effect
Kanab Ambersnail	Endangered	No Effect
Mexican Spotted Owl	Threatened	No Effect
Razorback Sucker	Endangered	No Effect
Utah Prairie Dog	Threatened	No Effect

**NO ACTION**

**Floodplains**

Because of the active cutbanks on the east side of the Paria River, the Cottonwood Road and transmission line will continue to be threatened by bank erosion. This will require the continued heavy maintenance of the access roadway which will continue to impact the east floodplain of the river, keeping it from becoming stabilized with riparian vegetation. As large flash floods continue to wash out the road, looser, unstable material will be required to repair the roadway.

**Visuals**

Visual resources would not be impacted under this alternative.

**Vegetation/Riparian**

Vegetation would not be substantially impacted under this alternative. If no stabilization occurs, patches of vegetation may be removed as portions of the banks are washed away.

**Threatened and Endangered Wildlife**

Flycatcher habitat would continue to erode away during summer monsoons in the three areas proposed for stabilization under the no action. This would cause short term loss of habitat until new willows and salt cedar trees become established in the disturbed areas.

## CUMULATIVE IMPACTS

Cumulative impacts are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions. There are two ongoing activities and one reasonably foreseeable future action that will take place within the Paria River Corridor. The ongoing activities are unauthorized recreational motorized use of the Paria River (the Paria River drainage is currently closed to motorized vehicles under the current Monument Management Plan) and Cottonwood Road maintenance. The reasonably foreseeable project is Whitehouse Campground reconstruction. It has been determined that cumulative impacts would be negligible as a result of the proposed action or alternatives because no ongoing or reasonably foreseeable project effects would overlap in time and space with effects from river stabilization.

There would be no cumulative effects anticipated from Cottonwood Road Maintenance or Whitehouse Campground reconstruction because: 1) road maintenance does not remove vegetation or introduce sediment into the river and thus would not cumulatively increase effects from river stabilization; 2) Effects from Whitehouse Campground reconstruction effects will not overlap in time and/or space with the riverbank stabilization construction effects; therefore, there are no cumulative effects.

Ongoing motorized recreation use is occurring in the Paria River but is not impacting southwest willow flycatcher habitat. Motorized recreation is concentrated in the river bottoms and on the benches outside of the riparian area. It is not crushing or removing willows, cottonwoods or salt cedar (personal communication with Brad Exton – from a field trip taken up the Paria in May 2007) so there is no effect to add to the temporary potential breeding habitat loss from stabilization structure construction.

## CHAPTER 5

### PERSONS, GROUPS, AND AGENCIES CONSULTED

During preparation of the EA, the public was notified of the proposed action by posting on the Utah Internet Homepage (ENBB) on 3/12/2007. No individuals have contacted the BLM in response to the notice. The process used to involve the public included phone calls to potentially interested parties. The GSENM contacted the Southern Utah Wilderness Alliance, Utah Project Wild, Kane County and other concerned citizens. A public comment period was not offered because very little interest in the proposal has been expressed.

**Table 5.1. List of Persons, Agencies and Organizations Consulted**

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
U.S. Fish & Wildlife Service (US FWS)	Information on Consultation, under Section 7 of the Endangered Species Act (16 USC 1531)	The Service agrees, by letter dated May 9, 2007, that the proposed action is not likely to adversely affect listed species.
Utah State Historic Preservation Office (SHPO)	Consultation for undertakings, as required by the National Historic Preservation Act (NHPA) (16 USC 470)	SHPO has concurred with the BLMs call that stabilization structures will not exceed any of the review thresholds listed in Part V11 (a) of the Protocol. SHPO (see letter dated 04/14/2003 in project record).  Work in the gravel pit will not require a SHPO response because the one cultural site found can be easily avoided during project implementation (see inventory completion letter in project record).
Kaibab Band of Paiute Indians  Hopi Tribe	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	Meetings were held with the Kaibab Band of Paiute Indians on May 30, 2007, and the Hopi Tribe on June 6, 2007 to describe and discuss Tribal concerns with the proposed action. The Tribes did not express concerns relative to the proposed action.
U.S. Army Corps of Engineers	The project would require a permit from the Corps under authority of Section 404 of the Clean Water Act (33 USC 1344)	State of Utah Department of Natural Resources Division of Water Rights approved the permit pursuant to General Permit 040 issued to the state of Utah by the US Army Corps of Engineers a letter dated March 13, 2007
Utah Department of Natural Resources Division of Water Rights	Project requires an application to Alter a Natural Stream Channel under Section 73-3-29 of the Utah Code Annotated, 1953	State of Utah Department of Natural Resources Division of Water Rights approved the permit in a letter dated March 13,2007

## List of Preparers

**Table 5.2. List of Preparers**

### BLM Preparers

<b>Name</b>	<b>Title</b>	<b>Responsible for the Following Section(s) of this Document</b>
Marietta Eaton	Science Lead	Project Manager
Jonathan Beck	Environmental Coordinator	NEPA Compliance
Allysia Angus	Landscape Architect/Land Use Planner	Visual Resources
Holly Beck	Botanist	Vegetation and Riparian
James Holland	Hydrologist	Floodplains

### Non-BLM Preparers

<b>Name</b>	<b>Title</b>	<b>Responsible for the Following Section(s) of this Document</b>
Karen Fullen	NRCS Wildlife Biologist	Threatened and Endangered Wildlife Species
Vane Campbell	District Conservationist (NRCS)	NRCS Project Coordination
Lou Pratt	Kane County Engineer	Technical Advice

## APPENDICES

### APPENDIX A INTERDISCIPLINARY TEAM ANALYSIS RECORD CHECKLIST

**Project Title:** Paria River Stabilization

**NEPA Log Number:** UT-030-07-008

**File/Serial Number:**

**Project Leader:** M. Eaton

**DETERMINATION OF STAFF: (Choose one of the following abbreviated options for the left column)**

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for significant impact analyzed in detail in the EA; or identified in a DNA as requiring further analysis

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section C of the DNA form.

Determination	Resource	Rationale for Determination*	Signature	Date
<b>CRITICAL ELEMENTS</b>				
NI	<b>Air Quality</b> (Holland)	Project footprint and the duration of construction are relatively small. While some dust will be increased during construction, increased bank stability and vegetative cover will reduce dust in the long term.	/s/ James R. Holland	03/27/2007
NP	<b>Areas of Critical Environmental Concern</b>	ACEC-1 of the Monument Management Plan states: "No Areas of Critical Environmental Concern (ACECs) are designated in the Monument Management Plan. After careful evaluation of the resources recognized in ACEC nominations, it was determined that their protection will be substantially equivalent under either Monument authority of ACEC designation."	NA	NA
NP	<b>Cultural Resources</b> (Zweifel)	All areas surveyed for cultural resources. Not sites were found. SHPO concurred on 05/02/3003	/s/ Matthew Zweifel	3/7/07
NP	<b>Environmental Justice</b>	According to the EPA Region VIII, State of Utah, Environmental Justice Map, the region has been categorized as a minority population area of 0-10% and a poverty population area of 10-20%. No minority or economically disadvantaged communities or populations are present which could be affected by the proposed action or alternatives. (see <a href="http://www.epa.gov/enviro/ej">http://www.epa.gov/enviro/ej</a> , 03/12/06).	Jonathan Beck	4/05/2007
NP	<b>Farmlands (Prime or Unique)</b>	No Prime or Unique Farmlands exist within the project area. (see <a href="http://www.ut.nrcs.usda.gov/technical/nri/1997resultscropland">http://www.ut.nrcs.usda.gov/technical/nri/1997resultscropland</a> .)	Jonathan Beck	4/05/2007
PI	<b>Floodplains</b> (Holland)	This project includes single bank stabilization only, not rechannelization. Floodplains will be improved in the long term with more stable banks and better riparian vegetation. See details in EA.	/s/ James R. Holland	03/27/2007

Paria River Stabilization EA

Determination	Resource	Rationale for Determination*	Signature	Date
PI	<b>Invasive, Non-native Species</b> (H. Beck)	Ground disturbing activities have the potential to increase the cover of invasive, non-native species that occur in or adjacent to the site. Measures should be taken to prevent introduction of new invasives into the site and control of existing populations	/s/ Holly Beck	3/30/07
NI	<b>Native American Religious Concerns</b> (Zweifel)	Native American groups have been informed of this project during annual consultation, and no comments have been received.	/s/ Matthew Zweifel	3/7/07
PI	<b>Threatened, Endangered or Candidate Animal Species</b> (NRCS)	The Utah Division of Wildlife has recent records of occurrence for southwestern willow flycatcher within a ½-mile radius of the project area.  There are no wildlife issues at the gravel pit because the area is already disturbed and does not provide habitat for TES species	/s/ Jonathan Beck with input from Karen Fullen NRCS Wildlife Biologist	5/4/2007
NP	<b>Threatened, Endangered or Candidate Plant Species</b> (Beck)	No federally listed or candidate plant species occur in or adjacent to the project area based on existing data and field surveys.	/s/ Holly Beck	3/28/07
NI	<b>Wastes (hazardous or solid)</b> (Powell)	There are no anticipated impacts relating to or from hazardous or solid wastes. Standard operating procedures will be used by the contractor in relationship to spills of petroleum products and handling and disposal of solid wastes.	/s/ Doug Powell	03/22/2007
NI	<b>Water Quality (surface/ground)</b> (Holland)	Groundwater quality will not be affected. Some increased surface water turbidity may occur during construction, but over the long term erosion will be decreased. This may decrease both turbidity as well as Total Dissolved Solids loading resulting in increased water quality.	/s/ James R. Holland	
PI	<b>Wetlands/Riparian Zones</b> (H. Beck)	Wetland and riparian zones will be altered as a result of the proposed action. Long term stability of riparian communities may improve.	/s/ Holly Beck	3/28/07
NI	<b>Wild and Scenic River (WSR)</b>	The entire length of the project area is along a segment of the Paria River that is proposed for inclusion in the National Wild and Scenic River System. The segment is tentatively classified as "Recreational." Wild and Scenic River management policy on Recreational segments requires the project does not degrade the "outstandingly remarkable values" for which this segment is proposed. "Management Standards for Recreational River Areas" in BLM's WSR Management Policy (Manual 8351, pg. 31) states that "construction of impoundments, diversions, straightening, riprapping, and other modification of the waterway or adjacent lands would not be permitted except in instances where such developments would not have a direct and adverse effect on the river and its immediate environment." The proposed action would have a direct effect the river and its immediate environment, but the effect would not be adverse. By stabilizing previously existing, erosion-prone road features with physical stabilization structures and revegetating with native riparian species, the effects on the river and its immediate environment would be beneficial in the long run. Further, WSR management policy states that "existing parallel roads can be maintained on one or both river banks. There can be several bridge crossings and numerous river access points. Roads, trails, and visitor areas shall conform to construction and maintenance standards and be free of recognized hazards." The proposed action meets these criteria.	/s/ Edd Franz	03/21/2007
NP	<b>Wilderness/Wilderness Study Areas</b>	No Wilderness or Wilderness Study Areas are present within the project area.	/s/ Edd Franz	03/05/2007
<b>OTHER RESOURCES / CONCERNS</b>				

Paria River Stabilization EA

Determination	Resource	Rationale for Determination*	Signature	Date
NP	<b>Biological Soil Crusts</b> (Anderson)	Area highly disturbed and not crusts are present.	/s/ Kim Anderson	5/24/2007
NI	<b>Fish and Wildlife including Special Status Species other than FWS Candidate or Listed species eg. Migratory Birds</b> (Barber)	Construction will occur outside of the migratory bird breeding season so there will be no impacts to breeding birds. Project will remove salt cedar and willows during construction. Willows will be replanted to mitigate any loss of riparian habitat.	/s/ Jonathan Beck	5/24/2007
NP	<b>Fuels / Fire Management</b> (Cahill)	NA	NA	NA
NI	<b>Geology / Mineral Resources</b> (Powell)	Riprap material is anticipated to come from BLM material sites. Such sites were analyzed for removal of mineral materials prior to the establishment of the pit. No additional impacts are anticipated to geologic, mineral or energy resources.	/s/ Doug Powell	03/22/2007
NP	<b>Lands / Access</b> (H. Wolfe)	NA	NA	NA
NP	<b>Law Enforcement</b> (Stoner)	NA	NA	NA
NA	<b>Livestock Grazing</b> (Madril)	NA	NA	NA
NI	<b>Paleontology</b> (Titus)	The likelihood of finding significant paleontological resources is extremely low. Field surveys found common invertebrate specimens. These are not considered significant because of their abundance and the fact that they were found out of context.	/s/ Alan Titus	6/05/2007
NP	<b>Rangeland Health Standards and Guidelines</b> (Madril)	NA	NA	nA
NI	<b>Recreation</b> (Stewart)	The stabilization work will help provide continued public access to several recreation sites and destinations. Therefore, recreation activities and experiences will benefit. Some recreationists will inevitably be inconvenienced due to travel delays caused by road construction; however, the road will remain open during construction and delays would be measured in minutes. When compared to benefits gained potential impacts are temporary and negligible.	/s/ Clay Stewart	3/26/07
NI	<b>Socio-economics</b> (Eaton)	The project will not result in any socioeconomic effects. However, if the transmission tower washes out, there could be short-term negative impacts as power and access is restored.	/s/ Marietta Eaton	3/26/2007
NI	<b>Soils</b> (Holland)	The vast majority of construction will take place in the channel and on the roadway. The Paria River's streambanks in the project area are primarily made up of active debris from both road construction and maintenance. Minimal stable streambank soils are present and may be impacted in the short term during construction, but in the long term these soils will benefit from more stable streambanks.	/s/ James R. Holland	03/27/2007
PI	<b>Vegetation including Special Status Species other than FWS Candidate or Listed species</b> (Beck)	Vegetation would be removed during project implementation. No special status species would be impacted by the project.	/s/ Holly Beck	3/30/07
PI	<b>Vegetation / Restoration</b> (Beck)	Restoration through planting of site appropriate species and removal of invasive species from the project area and immediate surroundings will be necessary.	/s/ Holly Beck	3/30/07

Paria River Stabilization EA

<b>Determination</b>	<b>Resource</b>	<b>Rationale for Determination*</b>	<b>Signature</b>	<b>Date</b>
PI	<b>Visual Resources</b> (Angus)	The proposed project segments are located in VRM Class II where the objective is to retain the existing character of the landscape. Visual contrast ratings are needed to determine whether VRM objectives can be met.	/s/ Holly Beck	04/25/07
NI	<b>Water Rights</b> (Holland)	Some water rights are present on the Paria River, but will not be negatively affected by this proposed action. Water Quality may increase as a result of this project which would be a positive impact to water right holders downstream.	/s/ James R. Holland	03/27/2007
NI	<b>Watershed</b> (Holland)	This project involves only the main channel of the Paria River. No anticipated impacts to its watersheds. Because of the relatively small extent of this project, no measurable impacts are anticipated to the Colorado River's watershed.	/s/ James R. Holland	03/27/2007
NP	<b>Wild Horses and Burros</b> <b>Brinkerhoff</b>	There are no wild horses or burrows in the project area	/s/ Raymond Brinkerhoff	3/27/2007
NP	<b>Wilderness Characteristics</b> (Franz)	Although the northernmost extent of Site 4 extends about 150 feet into the Utah Wilderness Coalition's "The Cockscomb" proposed wilderness, the BLM site visit (2-23-2007) showed that it was within an area that clearly shows impacts from road construction and maintenance, and therefore lacks wilderness characteristics.	/s/ Edd Franz	03/05/2007
NP	<b>Woodland / Forestry</b> (Anderson)	NA – There are no woodlands in the project area.	NA	NA

**FINAL REVIEW:**

<b>Reviewer Title</b>	<b>Signature</b>	<b>Date</b>	<b>Comments</b>
NEPA / Environmental Coordinator			
Authorized Officer			

**APPENDIX B  
PHOTOS**



Photo 1: Site 4 – looking south, note the erosion encroaching on the transmission tower



Photo 2: Site 4 - looking south, note the cutbank encroaching on the transmission tower



Photo 3: Site 3 – looking south

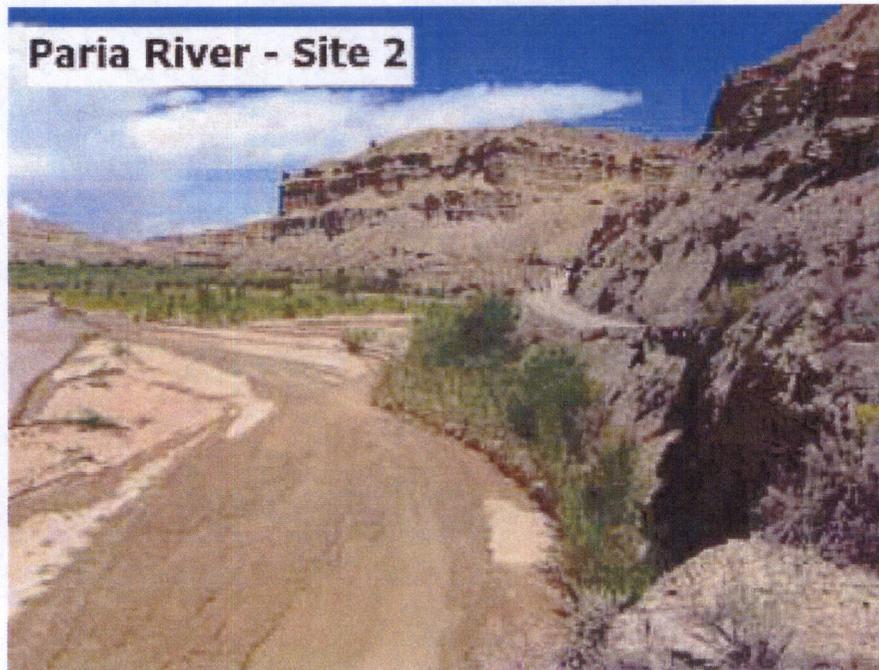


Photo 4: – Site 2 – looking north



Photo 5: Site 1 - looking north

APPENDIX C  
FIGURES

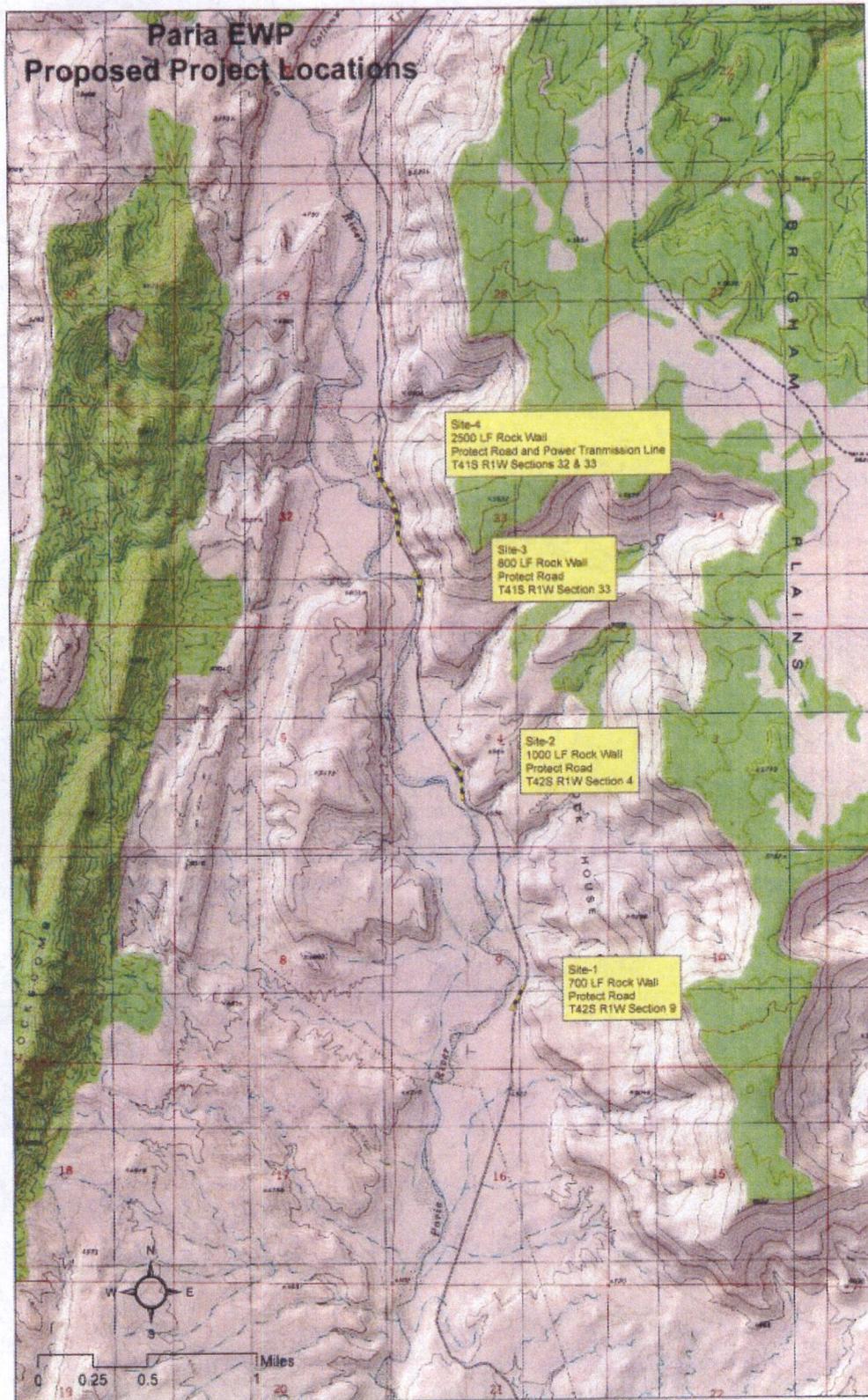
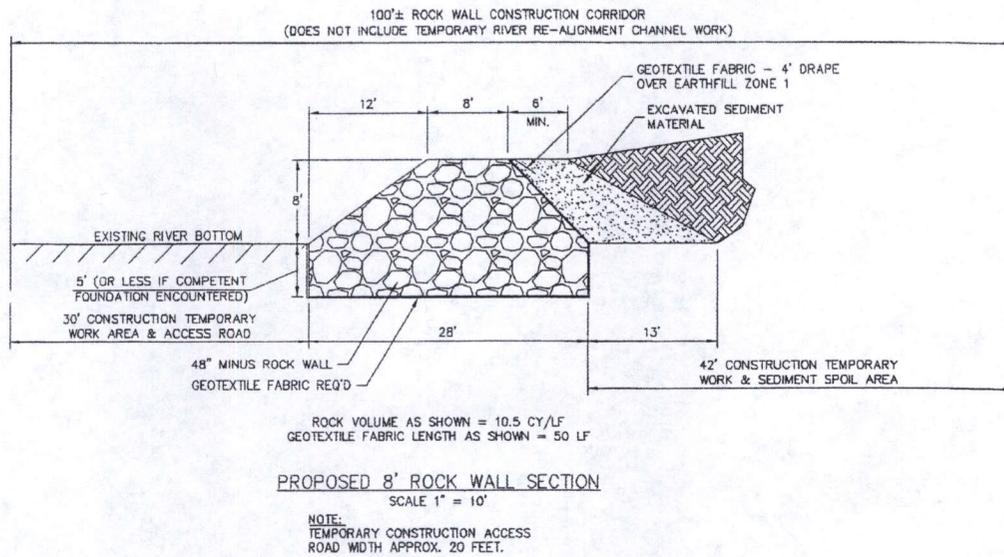


Figure 1. Project Vicinity Map

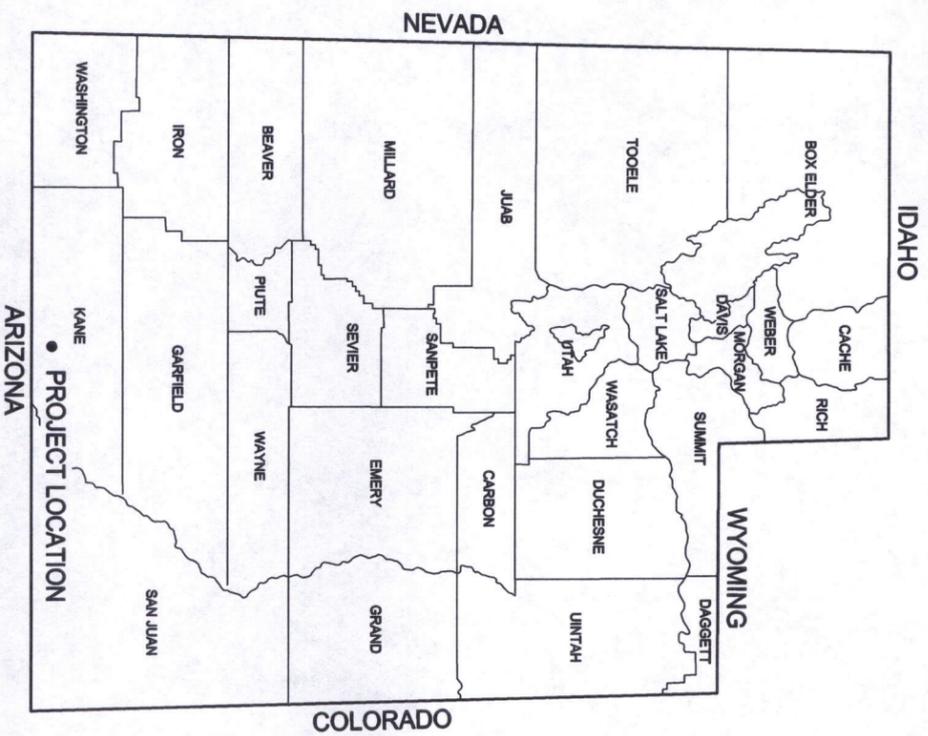


**Figure 2. Rock Wall Section**

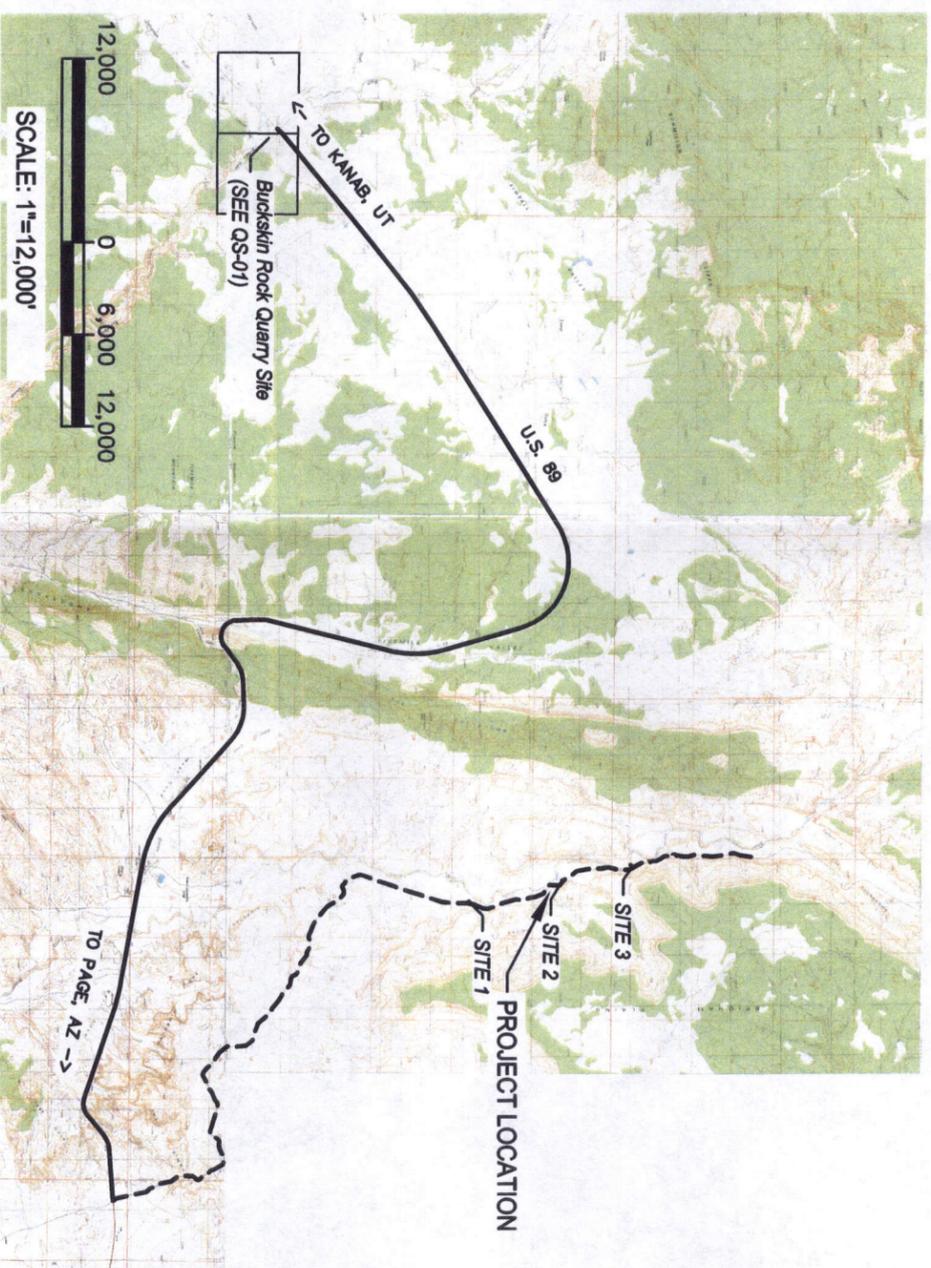
**Appendix D  
Concurrence Letters**

**KANE COUNTY  
PARIA RIVER  
EMERGENCY WATERSHED  
PROTECTION PROJECT  
2012**

PROJECT NO.	SHEET NO.
1209-081	1



PROJECT FUNDED IN PART WITH UNITED STATES DEPT. OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE EMERGENCY WATERSHED PROTECTION (USDA, NRCS EWP) PROGRAM FUNDS.



VICINITY MAP

**APPROVAL**

**RECOMMENDED FOR APPROVAL:**

ENGINEER: *D. H. ROBINSON* NO. 368665 DATE: *FEB. 8 2013*

PROJECT WAS DESIGNED IN ACCORDANCE WITH NRCS STANDARDS AND SPECIFICATIONS.

APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

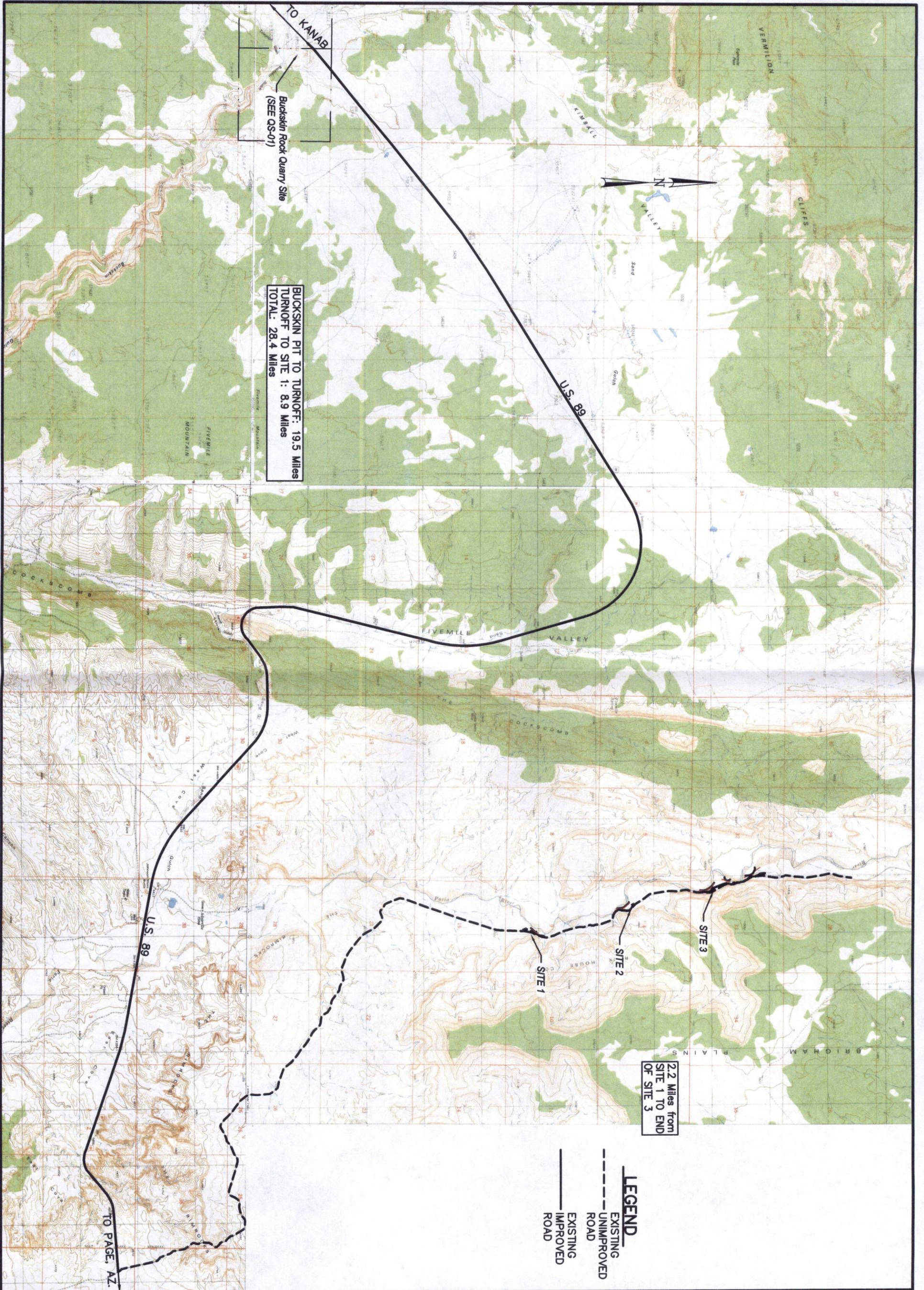
KANE COUNTY REP. \_\_\_\_\_ DATE: \_\_\_\_\_



**Jones & DeMille Engineering, Inc.**  
 CIVIL ENGINEERING - SURVEYING - TESTING  
 GIS - ENVIRONMENTAL  
 RICHFIELD - MANTI - PRICE - ROOSEVELT  
 - Infrastructure professionals -  
 1.800.748.5275 www.jonesanddemille.com



**United States Department of Agriculture**  
 Natural Resources Conservation Service  
 THIS PROJECT IS PARTIALLY FUNDED BY NRCS THROUGH THE EWP PROGRAM



BUCKSKIN PIT TO TURNOFF: 19.5 Miles  
 TURNOFF TO SITE 1: 8.9 Miles  
 TOTAL: 28.4 Miles

2.2 Miles from  
 SITE 1 TO END  
 OF SITE 3

**LEGEND**  
 --- EXISTING ROAD  
 - - - UNIMPROVED ROAD  
 ——— EXISTING IMPROVED ROAD

KANE COUNTY  
 PARIA EWP 2012  
 INDEX SHEET  
 PROJECT NUMBER: 1209-081  
 SHEET NO. 1A

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 GIS - ENVIRONMENTAL  
 1.800.748.5275 www.jonesanddemille.com

APPROVAL RECOMM. DATE	PROJECT DESIGN ENGINEER	DESIGN: LG 10-12	CHECK: DR 10-12	REVIEW DATE
APPROVED: DATE		QUANT:	CHECK:	BY:

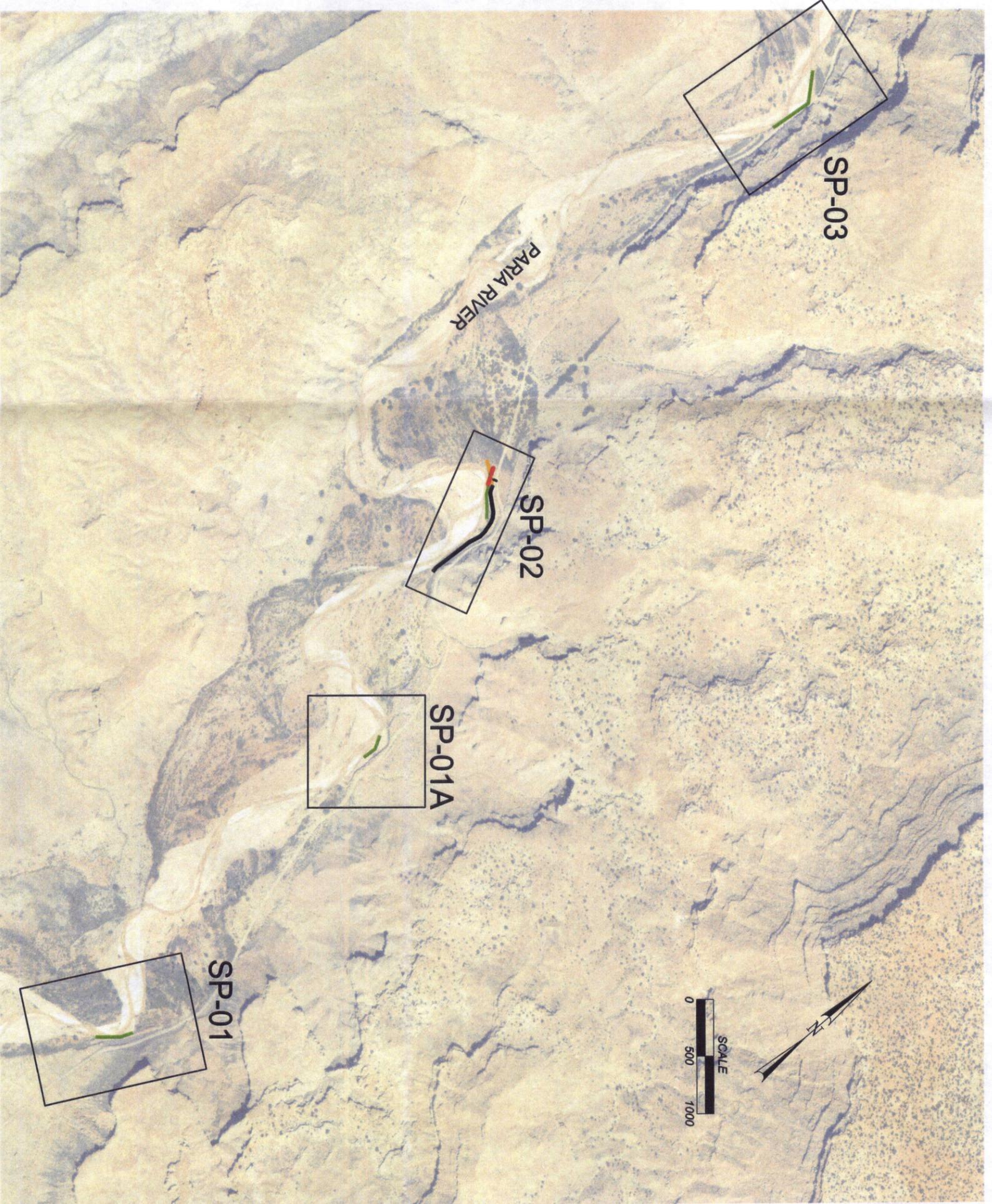
NO.	DATE	DESIGN REV. BY	MAPS CORR. BY	PARCELS AFFECTED	REQUEST BY	REMARKS
ORIGINAL SUBMISSION FOR AUTHORIZATION						
REVISIONS						
SCALE: 1"=5000'		DWG NAME: 1A		DWG CREATED: 10/02/2012		UPDATED: 10/5/2012
		SHT SET: KANE CO. PARIA EWP		PEN TBL: 1stndrd42800.cb		PLOTTED: 2/8/2013

**GENERAL NOTES:**

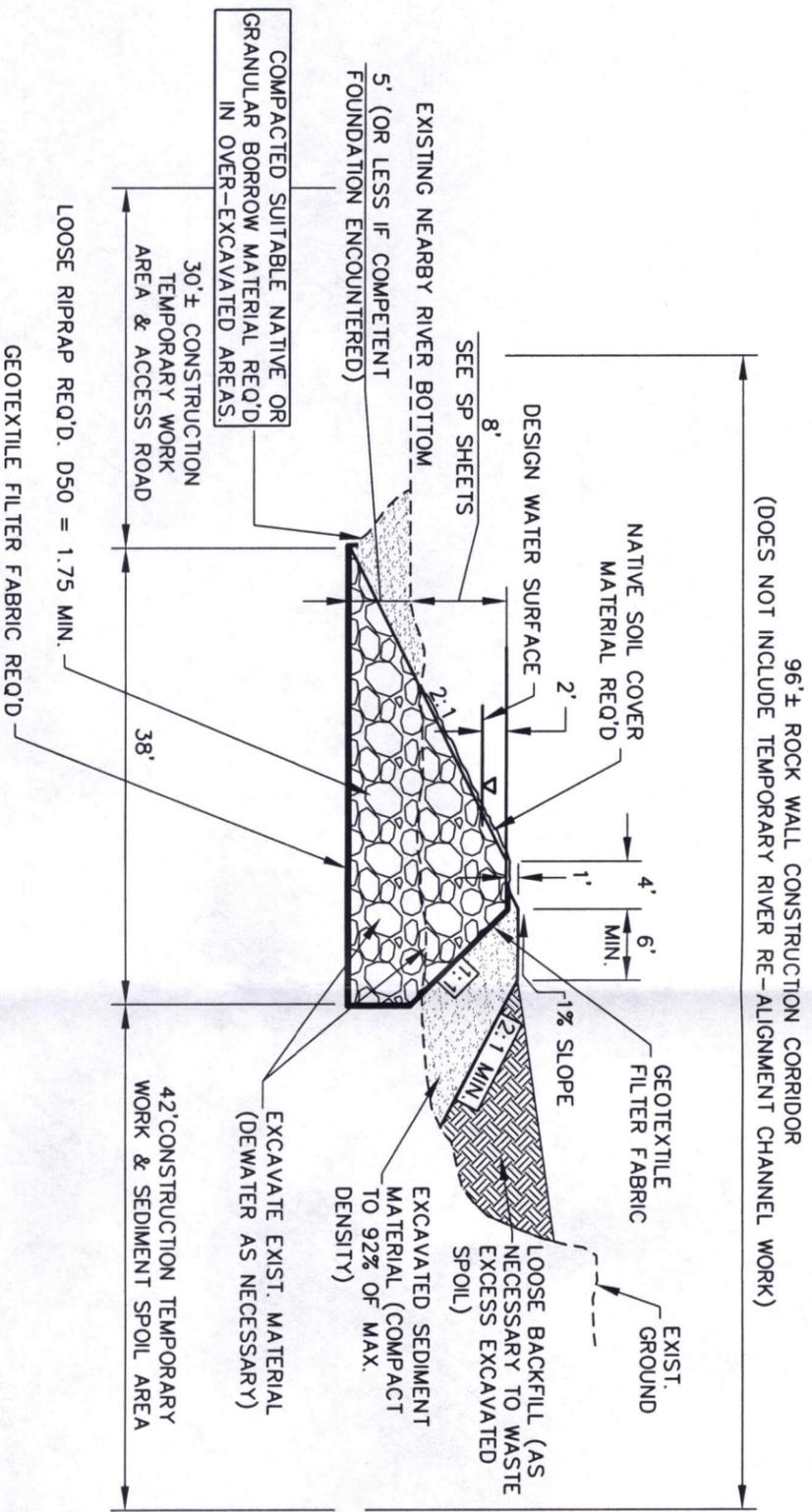
1. CONTRACTOR IS REQUIRED TO MAINTAIN EXISTING ACCESS AND CONSTRUCTION ROADS AND CONTROL DUST WITH WATERING AS NECESSARY DURING CONSTRUCTION ACTIVITIES. UPON COMPLETION OF PROJECT, CONTRACTOR SHALL BLADE ROADS TO PRE-EXISTING OR BETTER CONDITION.
2. PORTIONS OF EXISTING ACCESS ROAD BECOME IMPASSABLE AFTER EVEN MINOR STORM EVENTS DUE TO HEAVY CLAY SOILS. CONTRACTOR MUST PLAN WORK ACCORDINGLY.
3. CONTRACTOR IS REQUIRED TO FOLLOW BEST MANAGEMENT PRACTICES OUTLINED IN STREAM ALTERATION PERMIT AND ARMY CORP NW22 PERMIT, INCLUDED IN PROJECT MANUAL (COPY OF ENTIRE PERMITS WILL BE PROVIDED TO CONTRACTOR PRIOR TO CONSTRUCTION).
4. ALL EQUIPMENT MUST BE WASHED TO REMOVE ANY POTENTIAL WEEDS PRIOR TO ENTERING THE PROJECT AREAS.
5. ANY NATURAL MATERIALS (I.E. STRAW OR HAY) USED ON THE PROJECT MUST BE CERTIFIED AS WEED FREE.
6. THE CONTRACTOR SHALL CALL "BLUE STAKES" 1-800-662-4111 AT LEAST 48 HOURS IN ADVANCE OF EXCAVATING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION, PROTECTION AND RESTORATION OF ALL BURIED OR ABOVE GROUND UTILITIES, SHOWN OR NOT SHOWN ON THE PLANS.
7. CONTRACTOR IS REQUIRED TO MEET CONDITIONS INCLUDED IN GRAND STAIRCASE NATIONAL MONUMENT ENVIRONMENTAL ASSESSMENT DOCUMENT. CONDITIONS WILL BE PROVIDED TO CONTRACTOR AT OR PRIOR TO PRE-CONSTRUCTION MEETING.

**INDEX TO SHEETS**

SHEET NO.	DESCRIPTION
1	TITLE
1A	INDEX
1B	INDEX TO SHEETS
DT-01 to DT-02	DETAIL SHEETS
SP-01 to SP-03	SITE PLANS
QS-01	QUARRY SITE



SHEET NO. 1B COUNTY KANE	KANE COUNTY	Jones & DeMille Engineering, Inc. CIVIL ENGINEERING - SURVEYING - TESTING GIS - ENVIRONMENTAL 1.800.748.5275 www.jonesanddemille.com			
	PARIA EWP 2012		APPROVAL RECORD: _____ DATE: _____ PROJECT DESIGN ENGINEER: _____ APPROVED: _____ DATE: _____	DESIGN: _____ CHECK: _____ REVIEW: _____ DRAWN: LG 10-12 CHECK: DR 10-12 DATE: _____ QUANT: _____ CHECK: _____ BY: _____	NO. DATE DESIGN BY MAPS CORR. BY PARCELS AFFECTED REQUEST BY REVISIONS ORIGINAL SUBMISSION FOR AUTHORIZATION REVISIONS
PROJECT NUMBER: 1209-081			SCALE: 1"=1000'	DWG NAME: 2012FLOODSITE DWG CREATED: 10/02/2012	UPDATED: 2/8/2013
				SHT SET: KANE CO. PARIA EWP PEN TBL: 1stndc42800.cb	PLOTTED: 2/11/2013



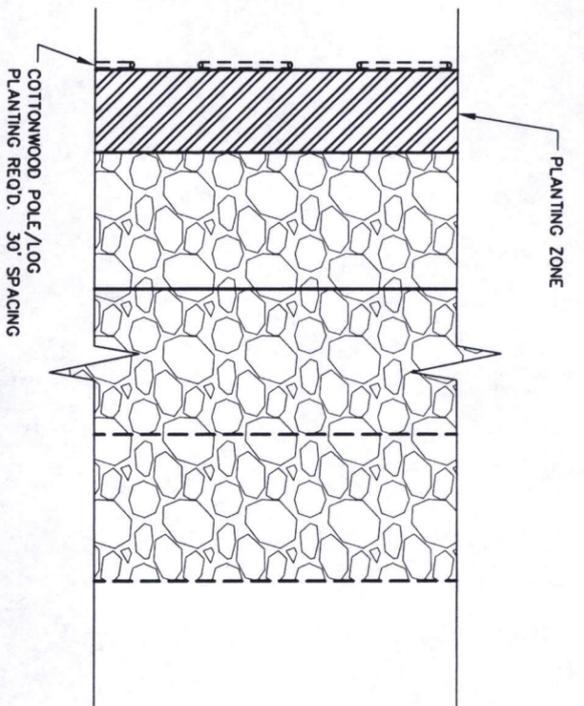
**ROCK WALL SECTION**

ROCK VOLUME (8') = 10.85 CY/LF  
 GEOTEXTILE FABRIC LENGTH = 57'

- BANK ARMOR AND ROCK WALL NOTES:**
1. COMPACTED EMBANKMENT REQUIRED WHERE TOP OF EXISTING BANK IS LESS THAN 3 FEET ABOVE DESIGN WATER SURFACE.
  2. STOCKPILE EXCAVATED MATERIAL FOR COMPACTED EMBANKMENT AND LOOSE BACKFILL.
  3. WHEN DEWATERING EXCAVATION, PUMP DISCHARGE TO TEMPORARY SEDIMENT DETENTION BASIN. DETENTION BASIN CAPACITY SHALL EQUAL 1-HOUR OF PUMP DISCHARGE CAPACITY.
  4. IN AREAS WHERE BANK ARMOR OR ROCK WALL IS PLACED IN HIGH FLOOD PLAIN, BACKFILL TO MATCH ADJACENT GROUND CONTOURS AND TO MATCH NATIVE SOIL COMPACTON.
  5. EXCAVATE NATIVE MATERIAL FROM STEEP BANK ON EAST SIDE OF COTTONWOOD CANYON ROAD TO COVER EXPOSED RIPRAP ROCK SURFACES.

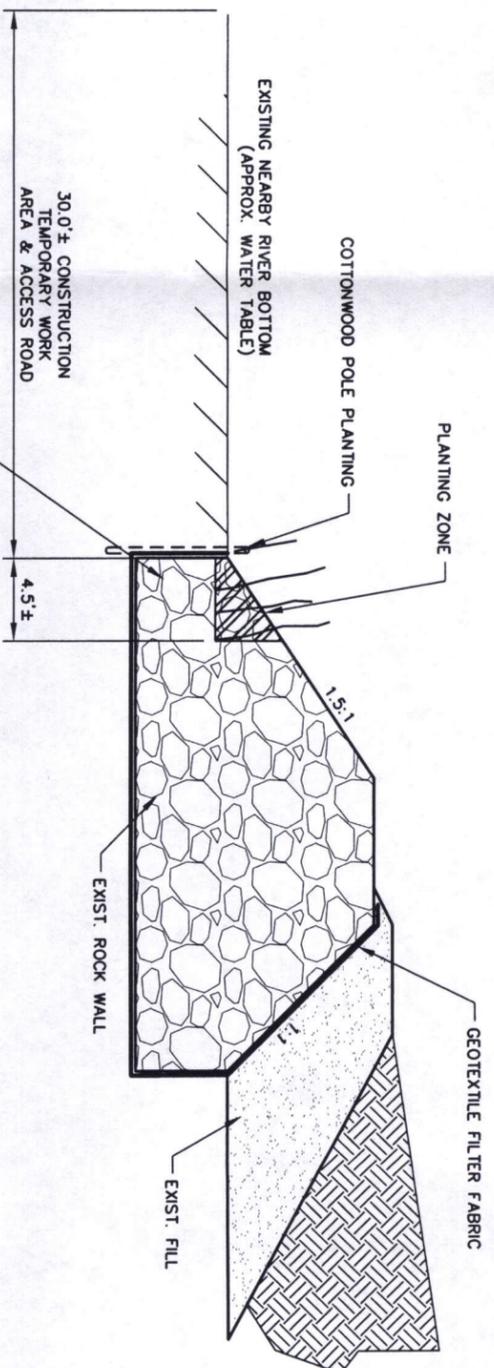
KANE COUNTY		Jones & DeMille Engineering, Inc. CIVIL ENGINEERING - SURVEYING - TESTING GIS - ENVIRONMENTAL 1.800.748.5275 www.jonesanddemille.com		NO.		DATE		DESIGN		MAPS		PARCELS		REQUEST		REMARKS			
PARIA EWP 2012				APPROVAL RECOMM:		DESIGN:		CHECK:		REVIEW		CORR BY		AFFECTED		BY			
DETAIL SHEET		DATE		PROJECT DESIGN ENGINEER		DRAWN: LG 10-12		CHECK: DR 10-12		DATE:		SCALE: NTS		DWG NAME: DT-01		DWG CREATED: 10/03/2012		UPDATED: 2/8/2013	
PROJECT NUMBER: 1209-081		APPROVED:		DATE		QUANT:		CHECK:		BY:		SHT SET: KANE CO. PARIA EWP		PEN TBL: 1stndrd-r2800.ctb		PLOTTED: 2/8/2013			

SHEET NO. DT-01



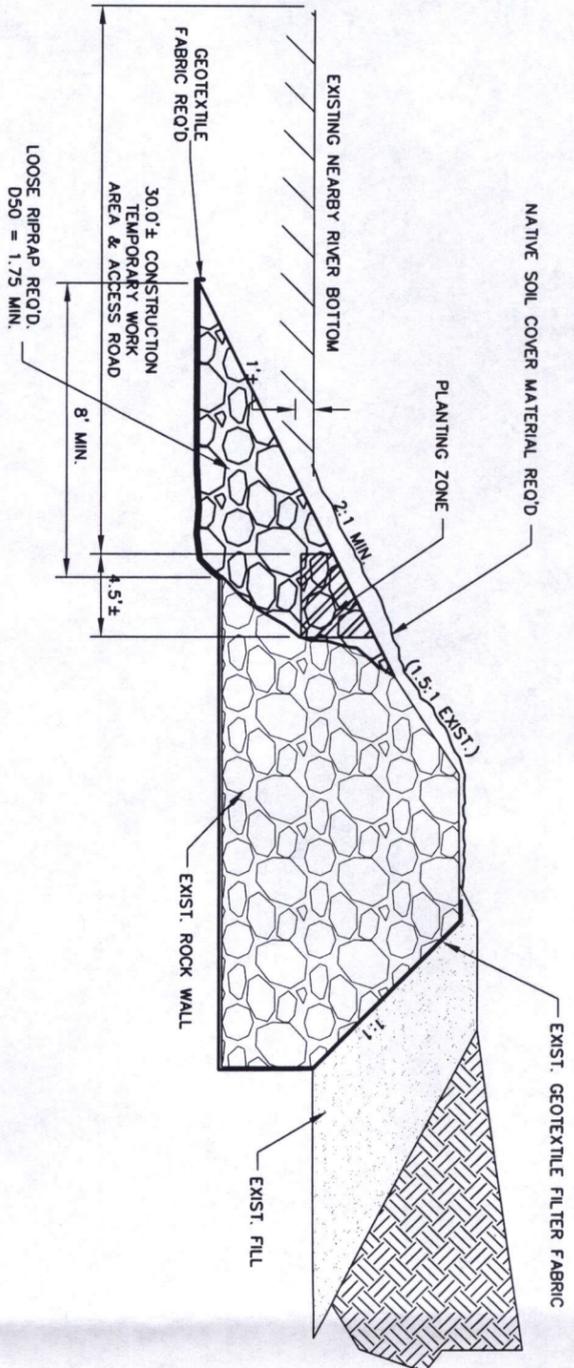
**WILLOW & COTTONWOOD CUTTINGS PLANTING DETAIL  
(ALONG ROCK WALL)**

NOTES:  
1. SLOPE COTTONWOOD PLANTINGS FROM 6' DEPTH TO 1' ABOVE FLOWLINE.



**WILLOW & COTTONWOOD CUTTINGS PLANTING DETAIL  
(ALONG ROCK WALL)**

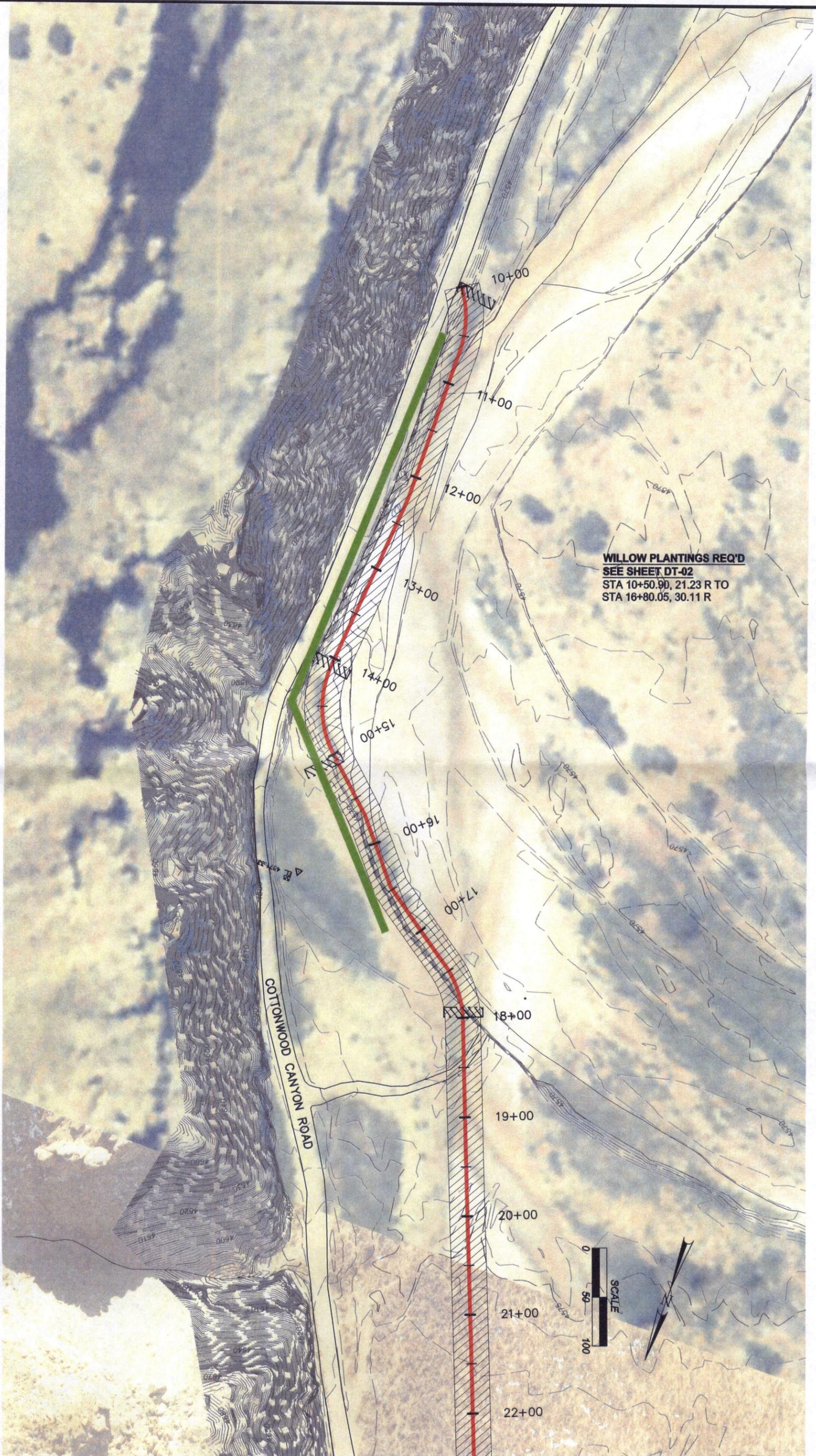
NOTES:  
1. REQUIRED PLANTING DENSITY:  
WILLOWS: (4) PER EVERY 10 LINEAR FEET ALONG PLANTING ZONE.  
COTTONWOOD: (1) PER EVERY 10 LINEAR FEET ALONG PLANTING ZONE.  
2. USE STINGER IF NECESSARY TO CREATE HOLE TO ACCEPT CUTTING(S).  
3. DO NOT PLANT IN STRAIGHT ROWS OR EVENLY SPACED. VARY AS NECESSARY TO FIND VOIDS IN RIPRAP REVEINMENT.  
4. COVER PLANTINGS WITH LOOSE MUD FROM RIVER BED. VERIFY THAT VOIDS AROUND AND BELOW PLANTINGS ARE FILLED.



**RIPRAP ROCK WALL REPAIR DETAIL**

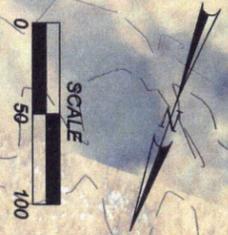
NOTES:  
1. INCREASE ROCK REPAIR WIDTH AS NEEDED TO OBTAIN MINIMUM 2:1 SLOPE

KANE COUNTY		 <b>Jones &amp; DeMille Engineering, Inc.</b> CIVIL ENGINEERING - SURVEYING - TESTING GIS - ENVIRONMENTAL 1.800.748.5275 www.jonesanddemille.com		NO.		DATE		DESIGN REV. BY		MAPS CORR. BY		PARCELS AFFECTED		REQUEST BY		REMARKS			
PARIA EWP 2012				APPROVAL RECOMM:		DESIGN:		CHECK:		REVIEW		ORIGINAL SUBMISSION FOR AUTHORIZATION							
DETAIL SHEET		DATE		PROJECT DESIGN ENGINEER		DRAWN: LG 10-12		CHECK: DR 10-12		DATE:		REVISIONS							
PROJECT NUMBER: 1209-081		APPROVED:		DATE		QUANT:		CHECK:		BY:		SCALE: NTS		DWG NAME: DT-01		DWG CREATED: 10/03/2012		UPDATED: 1/28/2013	
SHEET NO. DT-02		KANE COUNTY		COUNTY		KANE COUNTY		SHT SET: KANE CO. PARIA EWP		PEN TBL: 1stndrd-42800.cb		PLOTED: 2/8/2013							



**WILLOW PLANTINGS REQ'D**  
**SEE SHEET DT-02**  
 STA 10+50.90, 21.23 R TO  
 STA 16+80.05, 30.11 R

COTTONWOOD CANYON ROAD

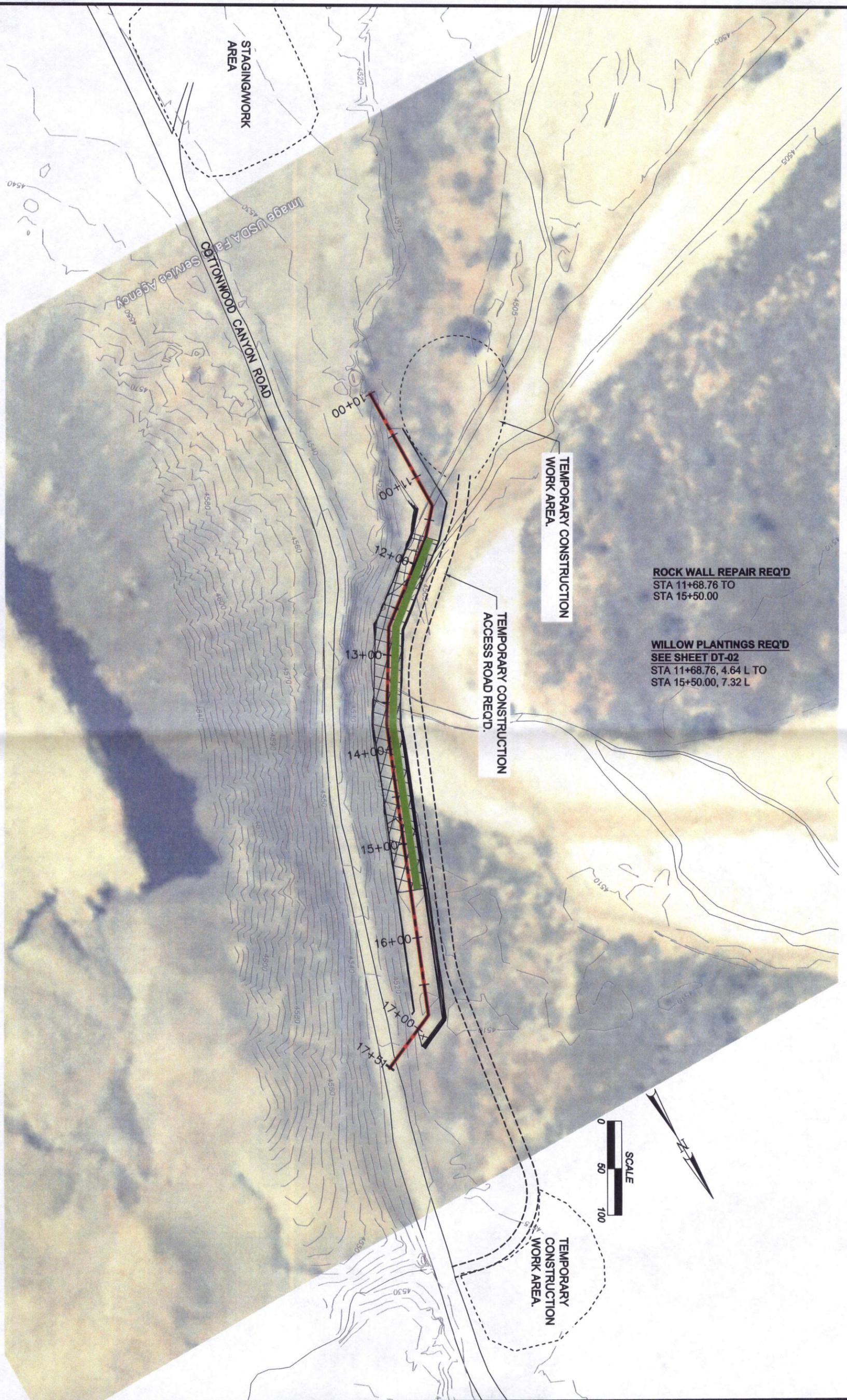


SHEET NO. SP-03

KANE COUNTY	KANE COUNTY
	PARIA EWP 2012
	SITE 3 PLAN SHEET
PROJECT NUMBER:	1209-081

 Jones & DeMille Engineering, Inc. CIVIL ENGINEERING - SURVEYING - TESTING GIS - ENVIRONMENTAL 1.800.748.5275 www.jonesanddemille.com			
DESIGN:	CHECK:	REVIEW	
DRAWN: LG 10-12	CHECK: DR 10-12	DATE:	
QUANT:	CHECK:	BY:	

NO.	DATE	DESIGN REV. BY	MAPS CORR. BY	PARCELS AFFECTED	REQUEST BY	REMARKS
ORIGINAL SUBMISSION FOR AUTHORIZATION						
REVISIONS						
SCALE:		DWG NAME:		DWG CREATED:		UPDATED:
1"=100'		SP-03		10/05/2012		11/13/2012
SHT SET: KANE CO. PARIA EWP				PEN TBL:		PLOTTED: 2/8/2013



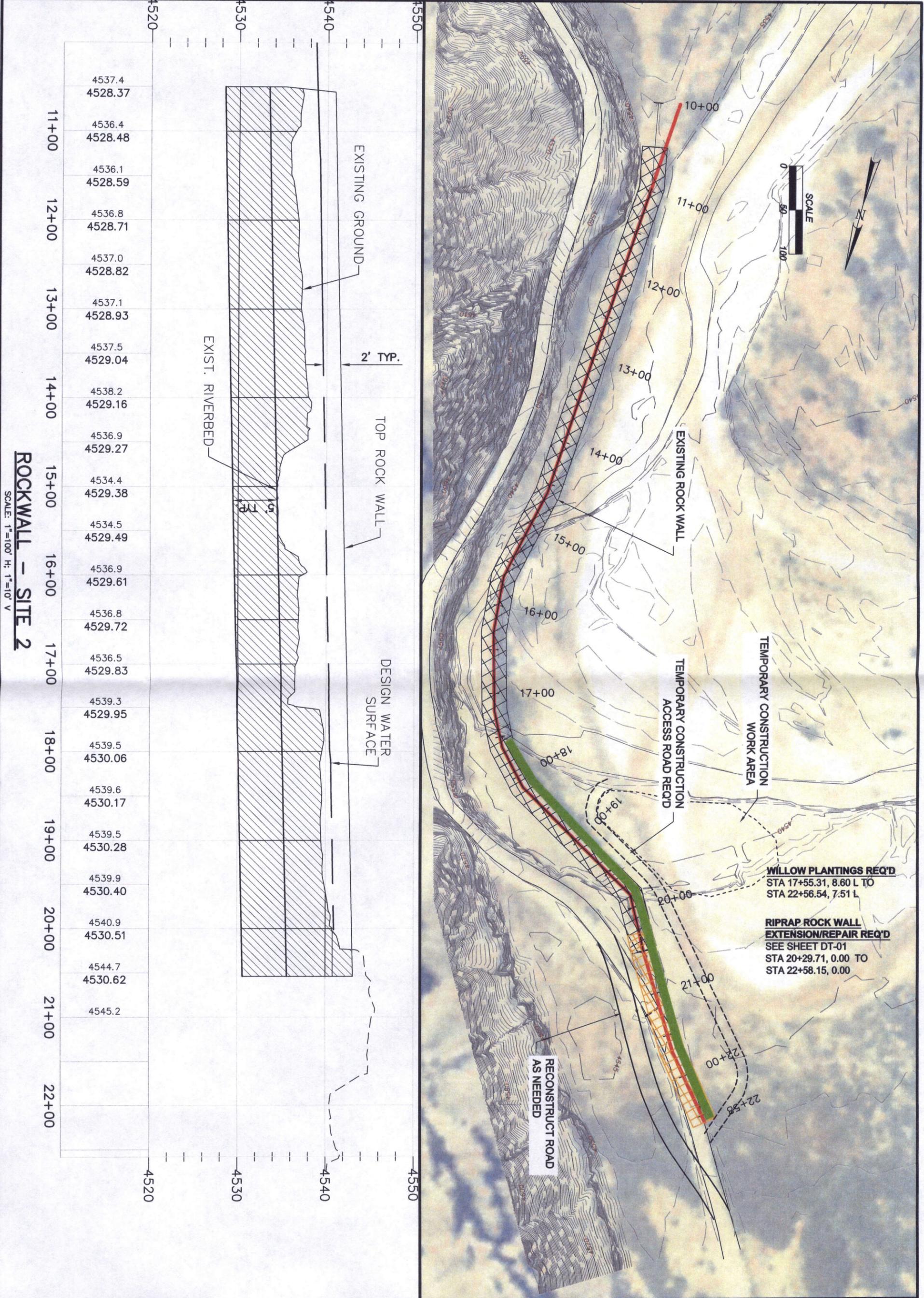
**ROCK WALL REPAIR REQ'D**  
 STA 11+68.76 TO  
 STA 15+50.00

**WILLOW PLANTINGS REQ'D**  
 SEE SHEET DT-02  
 STA 11+68.76, 4.64 L TO  
 STA 15+50.00, 7.32 L

SHEET NO. SP-01	KANE COUNTY	 <b>Jones &amp; DeMille Engineering, Inc.</b> CIVIL ENGINEERING - SURVEYING - TESTING GIS - ENVIRONMENTAL 1.800.748.5275 www.jonesanddemille.com			<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>DESIGN REV. BY</th> <th>MAPS CORR. BY</th> <th>PARCELS REQUEST BY</th> <th>REMARKS</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>				NO.	DATE	DESIGN REV. BY	MAPS CORR. BY	PARCELS REQUEST BY	REMARKS						
	NO.				DATE	DESIGN REV. BY	MAPS CORR. BY	PARCELS REQUEST BY	REMARKS											
KANE COUNTY	ORIGINAL SUBMISSION FOR AUTHORIZATION																			
PARIA EWP 2012	APPROVAL RECOMM. DATE PROJECT DESIGN ENGINEER	DESIGN: LG 10-12 DRAWN: LG 10-12 QUANT:	CHECK: DR 10-12 CHECK:	REVIEW DATE: BY:	REVISIONS															
SITE 1 PLAN SHEET	APPROVED: DATE	PROJECT DESIGN ENGINEER	CHECK:	DATE: BY:	SCALE: 1"=100'	DWG NAME: SP-01 SHT SET: KANE CO. PARIA EWP	DWG CREATED: 10/05/2012 PEN TBL: 104nd42800.cdb	UPDATED: 1/28/2013 PLOTTED: 2/9/2013												
PROJECT NUMBER: 1209-081	KANE COUNTY																			



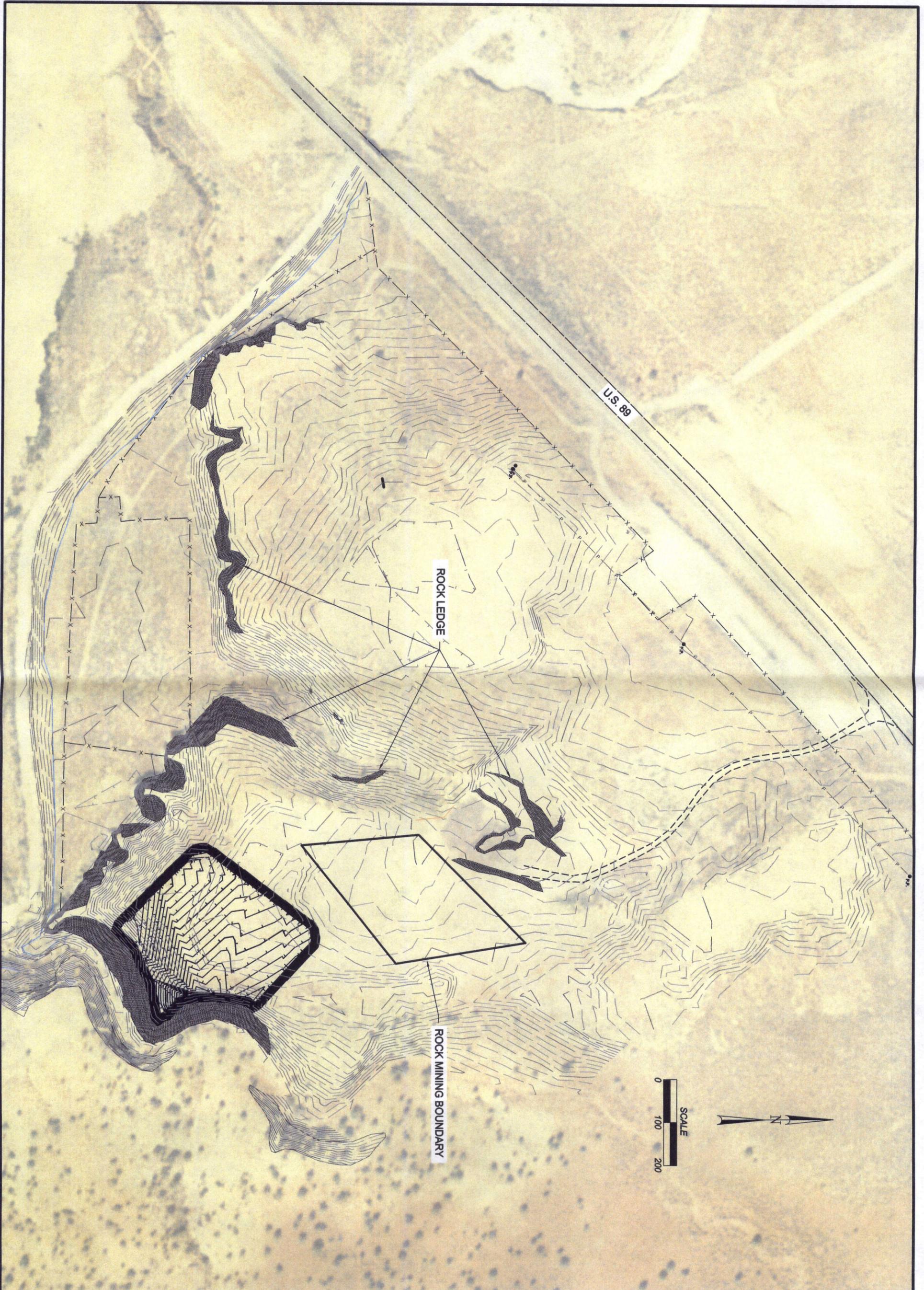
SHEET NO. SP-01A	KANE COUNTY		Jones & DeMille Engineering, Inc. CIVIL ENGINEERING - SURVEYING - TESTING GIS - ENVIRONMENTAL 1.800.748.5275 www.jonesanddemille.com				NO. DATE DESIGN REV. BY MAPS CORR. BY PARCELS REQUESTED BY				REMARKS		
	PARIA EWP 2012						ORIGINAL SUBMISSION FOR AUTHORIZATION				REVISIONS		
	SITE 1A PLAN SHEET		APPROVAL RECOMM. DATE PROJECT DESIGN ENGINEER	DESIGN: LF 10-12	CHECK: DR 10-12	DATE:	SCALE: 1"=100'				DWG NAME: SP-01A	DWG CREATED: 10/05/2012	UPDATED: 11/13/2012
	PROJECT NUMBER: 1209-081		APPROVED: DATE	QUANT:	CHECK:	BY:	SHT SET: KANE CO. PARIA EWP PEN TBL: 1stndrd-12800.cib				PLOTTED: 2/8/2013		



**ROCKWALL - SITE 2**

SCALE: 1"=100' H, 1"=10' V

SHEET NO. <b>SP-02</b>	KANE COUNTY	KANE COUNTY	Jones & DeMille Engineering, Inc. CIVIL ENGINEERING - SURVEYING - TESTING GIS - ENVIRONMENTAL 1.800.748.5275 www.jonesanddemille.com			NO. DATE DESIGN REV. BY MAPS CORR. BY PARCELS REQUEST BY		REMARKS
		PARIA EWP 2012	APPROVAL RECOMM. DATE PROJECT DESIGN ENGINEER	DESIGN: LG 10-12	CHECK: DR 10-12	REVIEW DATE	ORIGINAL SUBMISSION FOR AUTHORIZATION	
		SITE 2 PLAN SHEET	APPROVED DATE	QUANT:	CHECK:	BY:	SCALE: 1"=100'	DWG NAME: SP-02
PROJECT NUMBER: 1209-081						SHT SET: KANE CO. PARIA EWP	PEN TBL: 1stndrd+2800.cb	PLOTTED: 2/8/2013



SHEET NO. QS-01	KANE COUNTY	KANE COUNTY	 Jones & DeMille Engineering, Inc. CIVIL ENGINEERING - SURVEYING - TESTING GIS - ENVIRONMENTAL 1.800.748.6275 www.jonesanddemille.com										
		PARIA EWP 2012				APPROVAL	DESIGN:	CHECK:	REVIEW:	NO.	DATE	DESIGN REV. BY	MAPS CORR. BY
		QUARRY SITE	RECOMM.	DATE	PROJECT DESIGN ENGINEER	DRAWN: LG 10-12	CHECK: DR 10-12	DATE:	ORIGINAL SUBMISSION FOR AUTHORIZATION				
		PROJECT NUMBER: 1209-081	APPROVED:	DATE		QUANT:	CHECK:	BY:	REVISIONS				
									SCALE: 1"=200'	DWG NAME: QUARRY SITE	DWG CREATED: 10/04/2012	UPDATED: 10/5/2012	
										SHT SET: KANE CO. PARIA EWP	PEN TBL: 1stnd-42800.ctb	PLOTTED: 2/8/2013	